DOCUMENT RESUME

ED 176 253	CS 005 036
AUTHOR	Schick, George B., Ed.; May, Merrill M., Ed.
TITLE	Junior College and Adult Reading Programs Expanding Fields; Sixteenth Yearbook of the National Reading Conference.
INSTITUTION	National Reading Conference, Inc.
PUB DATE	67
NOTE	298p.; Proceedings of the National Reading Conference (16th, St. Petersburg, Florida, December 1-3, 1966)
EDRS PRICE	MF01/PC12 Plus Postage.
DESCRIPTORS	Adult Literacy; *Adult Reading Programs; *Educational Technology; Elementary Secondary Education; Higher Education; Junior Colleges; Reading Difficulty; Reading Improvement; *Reading Instruction; Reading Materials; *Reading Programs; *Reading Research; Reading Skills
IDENTIFIERS	*Job Corps; *National Reading Conference

ABSTRACT

Focusing on expanding fields in junior college and adult reading programs, the 35 articles in this volume were drawn from the sixteenth annual meeting of the National Reading Conference held in 1966. Among the topics discussed in the articles are the following: an interdisciplinary approach to the identification and remediation of severe reading disabilities, the retrieval of learning sets by the external display of reading materials, simulation in reading, college reading improvement programs, the ideal study environment for university students, trends in adult reading, counseling and reading skills for the terminal student, educational technology, reading research, Job Corps reading programs, reading and cognition, a psychology of reading, reading programs at the secondary level, the "interjacent" student, teaching Braille to the blind, group guidance and reading improvement, adult literacy programs, lifetime reading, and reading diagnosis. (FL)

****
*   Reproductions supplied by EDRS are the best that can be made   *
*   from the original document.   *
****

ED176253

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Junior College and Adult Reading Programs—Expanding Fields

SIXTEENTH YEARBOOK OF THE NATIONAL READING CONFERENCE

Edited by
George B. Schick
and
Merrill M. May
Purdue University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
The National Reading
Conference, Inc.
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Publisher:
The National Reading Conference, Inc.
Milwaukee, Wisconsin 53233

1967

CS005036

BEST AVAILABLE COPY

COPYRIGHT 1967

THE NATIONAL READING CONFERENCE, INC.

All rights reserved. This book, or parts thereof, may not be reproduced in any form without permission of the publishers.

Distributed By
NATIONAL READING CONFERENCE, INC.
Reading Center, Marquette University
Milwaukee, Wisconsin 53233

The ideas expressed in these papers are those of the authors and do not necessarily represent the viewpoints of the National Reading Conference

PRINTED IN THE UNITED STATES OF AMERICA
BY
THE MARQUETTE UNIVERSITY PRESS

OFFICERS AND BOARD OF DIRECTORS
OF THE
NATIONAL READING CONFERENCE, INC.

President, Paul C. Berg, University of South Carolina
Vice-President, Alton L. Raygor, University of Minnesota
Treasurer, Lester L. Van Gilder, Marquette University
Secretary, Hazel Horn Carroll, Southern Methodist University
Past President, Albert J. Kingston, University of Georgia
George B. Schick, Purdue University
Esther J. McConihe, Western Reserve University
Leonard Spearman, Southern University

The following yearbooks are available. These may be obtained from:

Reading Center, Marquette University
Milwaukee, Wisconsin 53233

YEARBOOK	TITLE	PRICE
10th-1961	"Phases of College and Other Adult Reading Programs"	$2.95
11th-1962	"Problems, Programs and Projects in College-Adult Reading"	2.95
12th-1963	"New Developments in Programs, Training Aids and Procedures"	2.95
13th-1964	"New Concepts in College-Adult Reading"	3.25
14th-1965	"Philosophical and Sociological Bases of Reading"	3.25
15th-1966	"New Frontiers in College-Adult Reading"	3.50
16th-1967	"Junior College and Adult Reading Programs – Expanding Fields"	3.50

File sets of a single copy of the yearbooks may be obtained at the special prices indicated:

10th-16th	@	$19.70	11th-16th	@	$17.00
10th-15th	@	16.60	11th-15th	@	14.00
10th-14th	@	14.50	11th-14th	@	10.90
10th-13th	@	10.65	11th-13th	@	8.00
10th-12th	@	7.80	12th-16th	@	14.50

PRICES ARE IN U.S. CURRENCY AND DO NOT INCLUDE POSTAGE.

PREFACE

The Sixteenth Yearbook of the National Reading Conference contains the papers presented at the Sixteenth Annual Meeting which took place at Florida Presbyterian College, St. Petersburg, Florida, on December 1-3, 1966.

The papers have been put together generally in the order in which they were presented at the Conference, with but two exceptions: the invitational address at the annual dinner meeting has been placed first, while the annual comprehensive summary of research in college-adult reading has been used as the final article.

Table of Contents

i.t.a.--What Next?
John Downing 1

An Interdisciplinary Approach to the Identification and Remediation of Severe Reading Disabilities
Gilbert B. Schiffman 14

Application of Operant Conditioning in a College Reading Center
David Wark 27

The Retrieval of Learning Sets by the External Display of Reading Materials
Wendell Weaver and A. C. Bickley 38

Reading Performance of Elementary Student Teachers in a Developing Institution
Effie Kaye Adams 47

The Effect of High-Interest Materials on Reading Achievement in the First Grade
Jo Stanchfield 58

Simulation in Reading
Jordan Utsey 62

Some Factors to be Considered in Conducting a College-Adult Reading Program
Homer L. J. Carter and Dorothy J. McGinnis 68

Surveys of College Reading Improvement Programs: 1929-1966
A. J. Lowe 75

Some University Students and Their Ideal Study Environment . . . As They See It!
Frank L. Christ 82

The Shifting Scene In Reading Training at the College Level
Esther J. McConihe 86

Trends In Adult Reading
Justin H. Miller 92

Counseling and Reading Skills for the Terminal Student
Paul Schoenbeck 99

Use of the Computer for Testing and Programming in a Reading Program
Gil Williams 108

Recent Research on Programmed Listening
Dee W. Henderson 114

A Job Corps Center Reading Program
Edward Fry 118

Reading and Basic Subject Matter Achievement of Job Corps Urban Center Trainees
Martin Kling 126

Methods and Materials in a Job Corps Remedial Reading Program
Joseph Zelnick 134
Flaws in Research Design
Doris Gunderson 142
Information Retrieval and Reading Research
Edward G. Summers 147
Reading Research and the Federal Government
Richard B. Adams 154
Reading and Cognition
Russell G. Stauffer 162
Progress Toward a Psychology of Reading
Alton A. Raygor 171
Reading Technology
George D. Spache 178
The Interjacent Student
Robert E. Mills 185
Methods of Teaching Braille to the Blind
Richard H. Bloomer, Marie Anchel and Bernard V. Krebs 189
The Effectiveness of Group Guidance on Reading Improvement of Junior College Freshmen
Margaret L. Craig 195
A Reading Program as an Essential Part of a Standard Two-Semester English Course
John M. Norris, Jr. 201
A Description of a Junior College Reading Program
Loretta Wade 212
Implications of Structure in Language
F. Allen Briggs 225
Adult Literacy—Progress and Problems
Robert L. Curry 236
Basic Literacy Programs for Adults: A National Survey
Wayne Otto and David Ford 240
A Study of Dropouts from Adult Literacy Programs
Eunice Nicholson and Wayne Otto 247
More Than One Way to Develop Lifetime Readers
M. Jerry Weiss 254
The Use of Federal Funds in Secondary Reading Programs
Eleanor M. Ladd 259
Diagnosing High-School Students' Reading Problems
Robert M. Wilson 263
1966 Review of Research in College-Adult Reading
Emery P. Bliesmer 268

I. T. A. — What Next?

John Downing

Director of the Reading Research Unit
and
Senior Lecturer in Educational Psychology
University of London Institute of Education

I.

*"Here will be an old abusing of God's patience,
and the King's English."*
WILLIAM SHAKESPEARE—"MERRY WIVES OF WINDSOR."

So must many people have thought about the introduction of the Initial Teaching Alphabet (i.t.a.), devised by Sir James Pitman when it was first introduced into twenty British schools in my original experiment of 1961. And, no doubt, many more still feel this way in 1966 when i.t.a. has spread so far and wide for teaching reading in the English-speaking countries. Even in the special area of concern of the members of the National Reading Conference, i.t.a. is being tried. In Britain, we have numerous case histories of adult illiterates who have been brought to reading through the help of i.t.a. At the institutional level, i.t.a. is being used to teach illiterates and semi-literates in prisons and in the Army. Now the same pattern of usage of i.t.a. for adults who need basic training in reading is developing also in the United States of America. Thus, the i.t.a.'s "abuse of the King's (or rather the Queen's and the President's) English" may seem to some to have reached even "dangerous" proportions!

However, the research which I have conducted in Britain during the past five years or so shows with great certainty that what abuses our common English language is not i.t.a. but the traditional orthography (t.o.). My research report, just published by the National Foundation for Educational Research in England and Wales, finds t.o. guilty of this abuse of the English language in the following verdict:

> *The unequivocal conclusion from the results of these experiments is that the traditional orthography of English is an important cause of difficulty in teaching and learning reading and writing in English-speaking countries. So long as traditional orthography is used for beginning reading and writing one must reckon that children are more likely to become confused about the tasks of reading and writing than they would be with a more simple and more regular system for English.*[1]

When, in 1960, I was appointed by the University of London Institute of Education to carry out the scientific comparison of learning to read and write in t.o. with learning to read and write with the simplified and regularised i.t.a. writing-system, I had no preconceptions about spelling reform. It is the objective evidence from my research which has led me to recognize the millstone of English spelling which is hung around the necks of children taking their first steps into literacy. The majority of the independent reviewers of my research report seem generally to be convinced of the validity of my conclusion, too.[2]

This is not the appropriate place to repeat the reporting of the statistical evidence which led me to this conclusion, but some idea of the importance of the difficulties caused by t.o. can be gathered if I mention just two of the most outstanding results. On tests of word recognition or accuracy administered in the middle of second year, children learning t.o. have only two-fifths of the reading vocabulary in t.o. that i.t.a. students have in i.t.a. Our research on children's composition shows that by the third year of school the i.t.a. student's vocabulary in writing is forty-five percent greater than that of the average child using t.o. These are not small differences. On the contrary, it is clear that simplification and regularisation of our orthography can make a very important difference to the education of young children.

You will notice that I speak of the ill-effects of t.o. rather than of the benefits of i.t.a. This is quite deliberate and in accord with the basic aim of our research, which was directly related to the promise of the then Minister of Education of her "interest and goodwill" for such research. This she gave in response to Dr. Mont Follick's question in the House of Commons in 1953 asking if she would state her policy towards proposals by a competent research organisation to investigate possible improvements in the teaching of reading by means of "*a system of simplified spelling.*" In our research, i.t.a. has been only an example of the many possible systems of simplification. Thus, i.t.a. is merely a vehicle for making the contrast between a simplified and regularised writing-system and the complex and irregular t.o. writing-system. It should be noted at once that while we know that i.t.a. is superior to t.o. we do not know if some other "system of simplified spelling" might not be even better than i.t.a. Through being the representative of simplified spelling, i.t.a. has gathered fame and carved out a niche for itself in the teaching of literacy, but, now that the principle of simplification has been established, we cannot call a halt. We must follow up this promising line of development to its logical conclusion. *i.t.a. has arrived—but what comes next?*

II

"It was always yet the trick of our English Nation,
if they have a good thing, to make it too common."
William Shakespeare, "King Henry IV, Part II"

Lately I have been wondering how much I may be blamed for having made i.t.a. "too common" prematurely in the United States. Possibly it would have been wiser for me to have declined the honor I felt in being invited to address the Educational Records Bureau

Conference in New York City in 1962. For some of the things that happened, subsequently, the only excuse I can offer is that it was my first visit to America and that I did not know your patterns of innovation. In my defense I may remind you that I did warn my audience in 1962 that a research program of at least ten to fifteen years should be envisaged before any final conclusions on i.t.a. *per se* could be drawn. Five years of research have now been completed but, while we may state with confidence that t.o. is a serious stumbling-block to literacy, the longer time is still required to determine the future development of i.t.a. itself.

However, despite these doubts about the timing of the introduction of i.t.a. into America, I believe that the essence of the original i.t.a. idea was basically a good product and one we could be proud to export from my country to yours. But now it appears to be the turn of i.t.a. to be "abused." So much so that I wonder if I did not—albeit unwittingly—unleash a monster into American reading, such has been my horror in studying Ohanian's[1] description of the way in which i.t.a. is being used in, apparently, a large number of American schools. Her picture of the way in which i.t.a. is being used in America is so utterly foreign to the i.t.a. classroom as found in my original experiment in Britain, that I doubt if our British i.t.a. teachers could recognize that she is writing about i.t.a. as they know it.

May I share my despair with you? Ohanian says: "To find out all that i.t.a. *is*, the materials prepared for children and the manuals for teachers by Messrs. A. J. Mazurkiewicz and H. J. Tanyzer published by Initial Teaching Alphabet Publications, Inc. must be studied."

Well, she is wrong there for a start because i.t.a. never has been associated with any particular set of materials and teaching methodology. But what makes her even more wrong is her assumption that the Mazurkiewicz and Tanyzer *Early-to-Read* i.t.a series is representative of i.t.a. everywhere. The methodology of teaching i.t.a. which Ohanian says she has found in the Mazurkiewicz and Tanyzer *Early-to-Read* program is quite different from that generally used with i.t.a. in Britain during my experiments and subsequently in most other schools which have adopted i.t.a. It is also quite different from the methods being used in many American schools where they have i.t.a. materials more like those used in our original i.t.a. classes in Britain. Ohanian would have arrived at a quite different picture of i.t.a. teaching materials and methods if she had reviewed *any one* of the other major basal series in i.t.a. Thus, Ohanian's description is not merely inaccurate but it is downright wrong on point after point.

Let me list the three major errors in Ohanian's description of i.t.a.'s teaching methodology:

1. The words *"early"* and *"earlier"* seem important in her description of beginning reading with i.t.a. Here she has

probably been misled by the title of the Mazurkiewcz and Tanyzer series *"Early-to-Read."* In contrast, a genuine concern for individual differences in reading readiness is a feature of the use of i.t.a. by informed teachers in Britain. There has been no attempt to push reading at an earlier age than usual.

2. Ohanian says:
   (a) "A basic sight word list is not an important consideration."
   (b) "Learning phonic clues *precedes* the learning of word wholes."

These generalisations are far from the truth of what was and still is usually done in i.t.a. classrooms in Britain. There the general rule has been to continue to use a Look-Say approach for the very first beginning stage in i.t.a. There are two chief reasons for this:

(i) Whether one is using t.o. or i.t.a. or any other writing-system for English, the rationale of Look-Say is unaffected. Look-Say was not introduced because grapheme-phoneme relations in English are rather obscure. Indeed, Look-Say has been widely adopted in countries like Turkey and many of the Spanish-speaking countries whose languages do have highly regular grapheme-phoneme relations. The thinking behind the Look-Say approach is that it gives the correct orientation for the purpose of reading. The young child taught from the beginning by formal phonic drills is liable to learn the erroneous notion that reading is making noises to letters and therefore to develop the corresponding "barking at print" habits which are so difficult to unlearn. In contrast, the Look-Say approach points out the true goal of reading from the outset—to obtain meaning from the printed page, to obtain information and enjoyment from books. This view of reading remains unshaken by i.t.a.

(ii) The second reason for maintaining a meaningful Look-Say approach in i.t.a. is of even greater importance. *To change to a phonic beginning for i.t.a. is to throw away i.t.a.'s primary virtue. This number one virtue in i.t.a. is the way in which it facilitates inductive learning and a heuristic or self-discovery approach in the "teaching" of reading.*

Yet, Ohanian tells us that, on the basis of her study of the *Early-to-Read* series of Mazurkiewicz and Tanyzer "The mode of teaching and learning is largely through telling and being told respectively and much less through guided discovery."

This is the worst misconception that one can have of i.t.a. The truth is that it is a shocking waste of i.t.a.'s potential if a "guided discovery" approach is not used in i.t.a. Hence, my despair about the use of i.t.a. in America. For instance, it would be an appalling abuse of i.t.a. to employ it to bring back dreary alphabetic workbooks as the child's first introduction to reading. The greater simplicity and regularity of i.t.a. makes it easier for children to discover the relations between letters and sounds, and we should grasp this opportunity to implement in the field of reading the educational philosophy which has been easier to implement in other learning tasks. Can we perhaps detect the influence of Flesch and Trace and the whole Sputnik panic in this blindness to i.t.a.'s primary virtue? In Britain, at any rate, we shall not be stampeded into a swing of the pendulum which would have us introduce i.t.a. at the cost of destroying the great advances of what Nila Banton Smith[4] has so justly termed "a truly golden period in the progress of reading instruction."

The official British Ministry of Education national survey of reading in 1961 published in the Newsom report[5] describes the results as "a gain in literacy" in which "teachers may well take pride." Innovation in education, if it is to be genuine progress, should be a building process, humbly adding our small brick of knowledge, upon those greater foundations laid before us. So it should be with i.t.a., but, in any case, to apply, for example, antiquated formal phonic drill methods to i.t.a. would serve only to destroy its greatest virtue in making the heuristic approach to reading so much more accessible to us.

The typical method of teaching reading in the i.t.a. experimental classes in Britain has been a well-established basal reader series translitterated into i.t.a., plus a Language-Experience approach, plus the class-teacher's opportunism in following closely the individual needs exhibited by her students. The very significant differences between i.t.a. and t.o. obtained in our research have been derived from that teaching methodology—not the one Ohanian says she has gleaned from her study of the American *Early-to-Read* series. Our British i.t.a. teachers have used phonics, of course, but not generally at the very outset. Fortunately, the same is true of many better informed American users of i.t.a.

The importance of the Language-Experience element in our i.t.a. classes cannot be over-emphasised. The very important improvement in children's creative writing in the i.t.a. classes is i.t.a.'s second great virtue. It derives from the common practice of British infants' schools in which top priority is given to creativity. Concern for correct spelling, letter-formation, writing on or between lines is postponed typically until the third year. This practice has been popular for many years. i.t.a.'s contribution has been to make it more successful.

Also, we should not minimise the importance of the freedom given to teachers to respond to the children's individual needs as they have learned to read and write with i.t.a. in the British experiments. Regimentation of methodology through authoritarian teachers' manuals and the rut of workbooks is again wasteful of i.t.a.'s potential.

3. Ohanian's third cardinal error arising from her view of i.t.a., which she says is based on her study of the *Early-to-Read* series, is her statement that transfer from i.t.a. to t.o. "is encouraged and achieved usually about April and May" (in first grade). She is very much mistaken and this is a dangerously misleading error. In our original i.t.a. experiment we found that less than half of the sample had begun transition by mid-*second*-year. In a second replication experiment, only seventeen percent had begun transition by that time.[6]

Downing and Jones (1966) reported "an increasingly relaxed attitude toward the transfer stage as the use of i.t.a. has spread and teachers have become more familiar with the notion of transfer of reading from i.t.a. to t.o."[6] More recently, the overall summing up of the evidence on transfer from i.t.a obtained in both our major experiments led me to make the following recommendations:

> When i.t.a. is used for beginning reading and writing, transition to t.o. should be postponed until children are really fluent in reading i.t.a. . . . This recommendation applies especially to the slow-learners. i.t.a. cannot have any benefit for the slowest ten per cent of the population if it is confined to the first two or three years of school. Indeed, twenty-five per cent of the population will be deprived of the full value of i.t.a. if it is not continued in the Junior School (4th year onwards).[7]

The undue emphasis on transition to t.o. caused through the claim that children should transfer to the traditional alphabet "by the end of their first year in school," seems to be due to a misconception about the goals of teaching with i.t.a. This causes the waste of i.t.a.'s third great virtue. Teachers should not judge their success in terms of the number of children they have forced to "jump through the hoop" of transfer by the end of first grade (or any set period for that matter). They should judge their progress by the children's confidence in attacking the task of reading, their children's understanding of the process of communication through print and writing, their children's enjoyment and pleasure from books, their skills in reading and writing *no matter whether it be in i.t.a. or in t.o.*

It is this kind of educational approach followed generally in the i.t.a. classes in the British experiment which has resulted in the improvements in reading and writing described earlier. I may add that by the end of the third year of school the average i.t.a. student is six months advanced on t.o. word recognition tests and significantly ahead in speed and comprehension. He is no worse than usual in t.o. spelling by mid-third-year and by mid-fourth-year he is significantly superior in t.o. spelling. That is as far as our research has taken us with any certainty.

In our original i.t.a. experiments in Britain we deliberately avoided associating it with any particular methodology of teaching. We simply added the i.t.a. writing-system to the good approaches that were already in general use in our schools. Unfortunately, my introduction of i.t.a. into America in 1962, seems to have gotten caught up with the Sputnik panic with the result that i.t.a. has become wrongly associated with the methodology described by Ohanian. Educators who recognise the steady progress of Nila Banton Smith's "golden period" must reject Ohanian's image of i.t.a. The truth is that the i.t.a. experiment in Britain vindicates the progressive movement in reading instruction. It shows that teachers have been right to emphasise guided self-discovery in activities related to reading. It shows that they have been right to move towards a Language-Experience approach in which the child's needs for self-expression and our need to preserve his creativity are recognized. It shows that we have been right to give priority to the development of methods which will involve children in reading from the beginning through their own interests and activities and through developing a love of books for what they contain. This is how i.t.a. has been conceived in Britain and in a good many places in America (I am thankful to see), but, if Ohanian's description of i.t.a. as used in many American schools is accurate, then i.t.a.'s three major virtues have not been grasped in those American i.t.a. classrooms.

What next? i.t.a. in America will become a temporary fad along with the other temporary fads of the Sputnik panic with which it has become associated, unless it can get into the main-stream of the development of educational progress—as it has in Britain. i.t.a. is crying out to be taken up by American educators who believe that reading and writing should come from the inside out and not from the outside in. The first time I heard Van Allen speak on the Language-Experience approach, I felt how well his ideas would be fulfilled if the writing-system used with his approach were i.t.a. The many American teachers I have met who expressed joy in Sylvia Ashton-Warner's approach to teaching the Maori children in New Zealand would find the implementation of that "philosophy" in their own classes that much easier if i.t.a. were used. I hope that what's next for i.t.a. in America may be its adoption by such progressive educators.

III

> *"But 'tis the talent of our English nation,*
> *Still to be plotting some new reformation!"*
>
> JOHN DRYDEN—"PROLOGUE, SOPHONISBA"

Som[illegible] may sympathize with Dryden when I tell you that our research on i.t.a. has shown that i.t.a. is (as yet) by no means the ideal simplified system for English. But when, in 1962, I first brought i.t.a. to America, I made it clear that the i.t.a. system itself would be the subject of investigation to see if any changes should be made in it. Furthermore, as I pointed out earlier in today's address, i.t.a. is only regarded by us at the Reading Research Unit as a representative example of the "systems of simplified spelling," the investigation of which Dr. Mont Follick asked the British Minister of Education to support.

For example, teachers' comments suggest that some of the characters of i.t.a. could be redesigned to further facilitate children's writing. Also, our analysis of children's errors in reading t.o. at the transition stage indicate that Sir James Pitman's hypothesis that transfer should take place in units of the "top coast-line" of "word forms" is not supported. Specific causes of proactive interference, due to the fact that i.t.a. characters sometimes have different sounds to their nearest t.o. counterparts, have now been located. Thus, i.t.a.'s comparative success over t.o. is in spite of these deficiencies within the total i.t.a. system. Obviously, what's next in i.t.a. must include research on improvements to this writing-system itself. This we envisaged from the very beginning, and our position was best stated by Sir Cyril Burt: "Even supposing that these novel proposals turn out to be more effective than any of the earlier ones, it still would not follow that they are the best that could be devised."[8]

Now that we know the magnitude of the improvement in reading and writing which can be obtained by means of a simplified spelling system for English, it would be negligent not to establish through further research what would be the ideal system for present-day practical purposes. Therefore, in the conclusions to my report in *The i.t.a. Symposium*,[9] I have proposed:

> If the Initial Teaching Alphabet or some other transitional system is to be taken up and more widely used, as seems likely from current trends, then urgent consideration should be given to this need for a series of laboratory studies to shape the new system to provide greater effectiveness in transfer to reading and writing in the conventional orthography of English.

I have also pointed out that i.t.a. could be improved for the earlier stages when i.t.a. alone is employed.

My recommendations for improving the i.t.a. system have been strongly supported by both of the American scholars who made independent reviews of my research report:[10] Dr. Jack Holmes states, "In summary, this reviewer heartily agrees with Downing's call for a series of experiments in the "psychological laboratory" designed to determine how the forms of i.t.a. characters ought to be modified to maximise their transfer value to t.o." Dr. A. Sterl Artley's comment is,

> Indeed, it would be extremely unfortunate if at this stage in the development of the Initial Teaching Alphabet it were to be assumed that both the code system and the method of its use were fixed and established so that no further work on either would be necessary. Were this to take place

the chances would be great that we would be operating with something less than the best. This, the profession could hardly condone.

S. I. Hayakawa says in his *Language and Thought in Action*, "We are, as human beings, uniquely free to manufacture and manipulate and assign values to our symbols as we please." Obviously, he is right from the general theoretical point of view, but, unfortunately, our freedom "to manufacture and manipulate and assign values" in i.t.a. seems to be in some doubt, at present. What should be logically next in i.t.a. may be hindered in two ways.

Firstly, there is the problem of finance. The Reading Research Unit has been generously supported by the Ford Foundation in its current i.t.a. evaluation project but, as yet, we do not know if financial support from any source will be available for the rational next step in the development of the i.t.a. avenue of research. Now that George Bernard Shaw's condemnation of English spelling has been proved right it seems an even greater shame that his will was frustrated.

Secondly, the possibility of i.t.a.'s logical development towards a system closer to the ideal seems to be in doubt according to three published statements which suggest that i.t.a. is fixed and invariable. They all emanate from the i.t.a. Foundation set up fairly recently to promote i.t.a.

1. Patrick Gordon Walker, Consultant to the i.t.a. Foundation, speaking at Lehigh University in August, 1965, stated:

   > Sir James gave freely to the world the copyright for the use of the initial teaching alphabet by publishers. *But he retained the right to supervise and, in the last resort, to insist upon conformity to the form of the letters and the way they are used to spell words.* (italics added).

2. Peter Daffon, of the i.t.a. Foundation in Britain, also speaking at Lehigh University said:

   > *This service enables publishers to conform to standards of spelling consistency which have been laid down by Sir James as a necessary condition for using the alphabet.* (italics added).

3. The i.t.a. Foundation at Hofstra University, New York states in its first "report:"

   > When Sir James Pitman developed the Initial Teaching Alphabet, he believed strongly that it should be free from the restraints of copyright and that it should be in the public domain. In doing so, Sir James *stipulated that only the characters he designed be the ones referred to as the Initial Teaching Alphabet, and that the spelling rules he formulated be faithfully adhered to in printed materials.* (italics added).

These suggestions that there are copyright restrictions on the use of i.t.a. are completely at variance with the position as understood by me and my colleagues at the University of London when we began the experiment. In fact, the University of London Institute of Education and the National Foundation for Educational Research in England and Wales in 1960 in their pamphlet appealing for financial and moral support for the i.t.a. research states clearly that there is in i.t.a. "NO COPYRIGHT. The particular alphabet used above may be obtained (in 12 pt.) from the Monotype Corporation, 43 Fetter Lane, E.C.4. Any designers' rights have been freed for all time for unrestricted use by all." In this official pamphlet,[11] no provisos on restrictions whatsoever were mentioned. Indeed, one cannot imagine that a University would have sponsored a project which entertained such restrictions as these three i.t.a. Foundation spokesmen are now proposing.

The conflict between the i.t.a. Foundation's recent statements and the original "NO COPYRIGHT" position is even more surprising because they attribute these restrictions to Sir James Pitman. As a matter of fact he is one of the signatories of the original "NO COPYRIGHT" statement from London University. What is more, Sir James in his address to the Royal Society of Arts in London on November 23, 1960 said: "The copyright in the characters has been made free to all."[12]

Nowhere in his address did he stipulate any provisos or restrictions on the future use and development of i.t.a.

I, myself, have repeated the original "NO COPYRIGHT" statement in several publications in order to encourage competitive publishing in i.t.a. and to keep open the way to further improvements in i.t.a. For example, at the Lehigh Conference in 1965, I said that my University's "declaration that there was no copyright in the new writing-system impressed the reader with its implication that this was no commercial enterprise."

Dr. Edward J. Meade of the Ford Foundation at the same Lehigh Conference made it clear that the Foundation had supported the i.t.a. research because it, too, believed i.t.a. to be free from copyright restrictions. He said:

> The interest of the [Ford] Foundation of which I am a part in supporting demonstrations of this alphabet, *given to the world without condition,* on both sides of the ocean is simply to encourage breaks from tradition and to encourage people in the field of reading and writing to look at the medium rather than to work constantly at a refinement of the methodologies of reading instruction. (italics added).

He also said: "Sir James has given the copyright for the initial teaching alphabet *without condition* to the world."[13]

Dr. Meade's aim to keep open the way to further improvements in i.t.a. seems evident in the title of his address, *"The Initial Teaching Alphabet: A Beginning But Hardly an End."* He went on to declare that "i.t.a., as with any innovation, can be improved," but he, too, expressed fears that an i.t.a. cult might develop which would limit progress along this new avenue of research. He said, "One of the things I fear most is the development of an i.t.a. cult" and later, "I am concerned, however, that the flurry of success with this medium, and legitimate successes in most cases, will lead many to become complacent and cause them to turn their backs on their dissatisfaction, which led them, I suspect, to develop the initial teaching alphabet." Dr. Meade continued: "The i.t.a. and its uses are good, but they can be better, substantially better, I believe."

Then he concluded as follows:

> Am I satisfied with the progress of the i.t.a. to date? Certainly not! Am I certain that the i.t.a. can make even greater contributions to reading and writing? You bet! All I ask is that we *work to make the i.t.a. better,* to broaden its applications, or *even to have it replaced by something even better.* After all the i.t.a. grew out of dissatisfaction. It must not be permitted to languish and become static by early success. The i.t.a. will be useful so long as it works to improve conditions for reading and writing. The way for it to improve these conditions is for *it to be constantly improving as well.* The i.t.a. is out to destroy an unquestioned and outmoded orthodoxy. *Let us hope that it, itself, does not become an orthodoxy.* (italics added).

Dr. Meade's words are in the true spirit of our original approach to the i.t.a. research project. We have not been attempting to validate the i.t.a. system in particular, but the general principle of simplifying and regularising English spelling. Now that we know the principle is valid we must find the best possible way of applying it. This may be an improved i.t.a. system—indeed so much improved that it may become quite different from the one with which we began.

Unfortunately, in America, Dr. Meade's call to maintain a critical attitude towards i.t.a. and thus to keep open the way to improvements in the i.t.a. system itself seems to have been misundersood in some quarters:

1. Dr. Mazurkiewicz in his "*Epilogue*" to the published proceedings of the August, 1965 i.t.a. Conference at Lehigh University repeats some of the phrases in Dr. Meade's title "The Initial Teaching Alphabet: A Beginning But Hardly an End" in these closing words: "The i.t.a. has had a good beginning: this is hardly the end."

But Dr. Mazurkiewicz's "Epilogue" is not a reinforcement of Dr. Meade's concern that i.t.a. shall avoid becoming a cult or developing, through complacency, a premature orthodoxy which will limit its further improvement. Instead, Dr. Mazurkiewicz gives his own account of a paper entitled, "I Reserve Judgment" by Warren Cutts, then of the U.S. Office of Education, which (for some reason not stated) has been omitted from the published proceedings. We are told that Mr. Cutts "admitted that the increasing amount of information had made him revise his views, and he no longer was negative in his judgment." Thus, the "beginning but hardly the end" in Dr. Mazurkiewicz's "Epilogue" has quite a different message to the one intended by Dr. Meade. Dr. Mazurkiewicz is referring only to the acceptance of i.t.a. as at present constituted.

2. In the November, 1966, issue of the *Reading Teacher,* Initial Teaching Alphabet Publications, Inc. of New York City have

an advertisement for the i.t.a. and t.o. materials of Drs. Mazurkiewicz and Tanyzer which includes the following words: "i.t.a. is just a beginning—a key to unlock the vast world of written language for each child."

Again, there is no suggestion that i.t.a. is "a beginning" in the sense of its being "experimental" as was meant when Dr. Meade coined the expression "i.t.a.—a beginning but hardly an end," and thus gave his wise counsel to retain an experimental open-minded outlook toward further improvement in i.t.a.

"*i.t.a.—What Next?*"—is the question I have tried to answer today. The future of i.t.a. itself is difficult to predict at this moment because of the several misconceptions I have tried to clarify for you in this address. The immediate need for i.t.a. in America is to "put its own house in order." If i.t.a. does not free itself from its association with the teaching methods in Ohanian's image of i.t.a. which seem to have been brought back from the past by the Sputnik panic, if the confusion about i.t.a.'s copyright position is not cleared up satisfactorily, if i.t.a. becomes frozen into an orthodoxy supported by a cult, then i.t.a. as such will wither away possibly within a few years. The best that I would hope for then would be that the answer to my question "i.t.a.—what next?" would be an entirely fresh start with a new and different simplified system free of the shackles of threatened copyright action. A new system in which professional educators and educational research workers would have absolute liberty to develop and shape the best possible simplified and regularised writing-system for literacy training in English. i.t.a. has the right to be considered for general reform only so long as it is clearly and unequivocally in the public domain. Therefore, I repeat, if there is any doubt about i.t.a.'s freedom from copyright restriction, if there is any doubt about i.t.a.'s readiness to seek further improvement within its own system, if there is any doubt about i.t.a.'s association with progressive teaching methods and liberal aims in education, then *what's next clearly must be NOT i.t.a.*

---

[1] Downing, J. (1966). "Research Report on the British Experiment with i.t.a." in *The i.t.a. Symposium*. Slough, Bucks, England: National Foundation for Educational Research in England and Wales.

[2] See for example the comments of Drs. A. Sterl Artley and Jack Holmes published with the other reviews also in *The i.t.a. Symposium* (see footnote 1).

[3] Ohanian, V. (1966) "Control Populations in i.t.a. Experiments." *Elementary English*, 43: 373-380.

[4] Smith, Nila B. (1965) "What have we Accomplished in Reading? A Review of the Past Fifty Years." *Elementary English*, 38: 141-150.

[5] Ministry of Education (1965). *Half Our Future*. London: Her Majesty's Stationery Office.

[6] Downing, J. and Jones, B. (1966). "Some Problems of Evaluating i.t.a. A Second Experiment." *Educational Research*, 8: 100-114.

[7] Downing, J. (1967) *Evaluating the Initial Teaching Alphabet*. London: Cassell.

[8] Burt, C. (1962) Preface in Downing, J. (1962) *too bee or not to be*. London: Cassell.

[9] Downing, J. (1966), "Research Report on the British Experiment with i.t.a." in *The i.t.a. Symposium*. Slough, Bucks, England: National Foundation for Educational Research in England and Wales.

[10] Dr. Jack Holmes' and Dr. A. Sterl Artley's reviews of Dr. John Downing's Research in *The i.t.a. Symposium*. Slough, Bucks, England: National Foundation for Educational Research in England and Wales.

[11] University of London Institute of Education and the National Foundation for Educational Research in England and Wales (1960). *Some reasons why we are initiating an investigation into the early stages of learning to read, when the matter to be read is printed in a special form alleged to be easy to learn and leading easily to a full reading skill.* London: University of London Institute of Education.

[12] Pitman, J. (1961) "Learning to Read: An Experiment," *Journal of Royal Society of Arts*, 109: 149-180.

[13] Edward J. Meade's and John Downing's statements may be found on pages 34-36 and page 28 respectively of Mazurkiewicz, A. J. (1966) *The Initial Teaching Alphabet and the World of English*. Hempstead, New York: Initial Teaching Alphabet Foundation.

An Interdisciplinary Approach to the Identification and Remediation of Severe Reading Disabilities

Gilbert B. Schiffman

Maryland State Department of Education
State Office Building, 301 West Preston Street
Baltimore, Maryland 21201

A great deal has been researched and written relating to the retarded reader. Unfortunately, a survey of the literature indicates that there is considerable lack of agreement among the interested professionals as to the etiology and appropriate pedagogical procedures.

However, there appears to be general agreement that 10 to 15% of school children are retarded in reading. Even if this figure is slightly exaggerated, the number of handicapped children in our growing school population is reaching an alarming figure.

Within the past decade many professional people concerned with the welfare of children have been lobbying for interdisciplinary cooperation. Recently, we have seen progress made in this area of endeavor. However, the crossing of frontiers has been slow and deliberate as members of the evaluation and treatment teams have learned to tear down semantic barriers to communicate among themselves. Unfortunately, and I realize that this may be a poor choice of an adverb, the sudden influx of federal money has taken on the role of an "accelerating catalyst." Funded under Title III of the ESEA Act, interdisciplinary projects and centers are springing up all over the country and are becoming the rule, not the exception. In the rush to get things started and with federal urging for "new innovations" very often this gradual professional incubation is being hatched under forced draft much too soon. Each expert is seeing the child in light of his own biases and discipline. Although we talk about the "whole child" we end up fragmentizing him and becoming piece workers. Usually one practictioner attempts to put the pieces back together into a whole child; in other words, he tries to reconstruct the child in the light of many isolated reports. However, a human being is not like a jigsaw puzzle, and the resultant mosaic may differ appreciably from the original youngster. Nevertheless, educators having the major responsibility for the remediation of these children are beginning to realize that reading instruction is no longer only the province of the elementary teacher. Teachers may not always have the scientific "know-how" to understand why Johnny lacks certain capacities and skills, why Billy cannot profit by pedagogical procedures which are successful with Ann and Fred. Too often uncorrectable defects are treated and useful strengths are suppressed.

Our interest in children with learning disabilities derives from a ten-year association with an interdisciplinary diagnostic clinic (Central Evaluation Clinic for Children) where we have had the opportunity to study large numbers of children referred because of school failure. In this setting each child is studied thoroughly by a pediatrician, neurologist, psychologist, audiologist, and speech pathologist. Electroencephalograms are obtained routinely; psychiatric and special educational consultations are freely utilized. A close working relationship has been maintained with school authorities who have initiated the referrals, provided appropriate educational and background information, and participated regularly in our staff conferences. Working in such an interdisciplinary setting, the professional worker has a unique opportunity to gain firsthand experience with school problems, to exchange ideas with several disciplines involved, and to cultivate an interdisciplinary exchange of information and ideas. It has also been possible to view in broad perspective some of the conflicting viewpoints and interpretations of the existing body of knowledge about children with various kinds of problems in school adjustment and academic achievement.

It is not an infrequent occurrence that the same child will be given diagnostic labels which are seemingly at considerable variance when studied in different clinical settings. An example of this occurred recently in Baltimore when a seven-year-old boy was studied in three highly regarded centers within a period of several months. In one clinic he was called neurologically impaired with an aphasio aphasoid central language problem. In another he was diagnosed as schizophrenic; in the third he was called chronic brain syndrome with organic hyperkinetic behavior disorder. The reasons for such semantic confusion and apparent difference of opinion are not difficult to discern since the child had multiple problems. Each consultant labeled the boy according to the major problem as he perceived it. Without attempting judgment about the accuracy of any of the diagnostic terms used, it does seem appropriate to ask if this single example reflects our present state of knowledge and understanding of child development, and furthermore, whether we are aware that such confusion exists. Apparently, everyone knows what he means, but no one else does. Therefore, it is very difficult for communication to take place.

The interdisciplinary concern is not usually with the developmental or mildly retarded corrective readers, but with the severe or remedial retarded pupils.

Other labels for this category are specific reading disability, congenital word blindness, primary reading retardation, and development dyslexia. Under the guise of its various names, the severe reading disability syndrome has been attributed to many etiological components, which will be discussed in turn. The important factor here is not so much to agree on a specific etiology, but to understand and tolerate each other's biases and points of view. This is the only way we will ever build effective interdisciplinary programs.

NEUROLOGICAL

A. *Minimal Brain Damage:* Such diagnoses as "brain injured," "brain damaged," "minimally brain damaged," "neurologically handicapped," have become very popular in recent years among psychologists, speech pathologists, some educators, and a few physicians. These terms, whether the user knows it or not, imply that the child's difficulties are due to a disease of the nervous system. These diagnoses are often being based on observations of the child's behavior in and out of the classroom, on his pattern of successses and failures, and predominantly on certain psychometric tests.

Of considerable current interest is whether minimal brain disfunction might exist in some of these children. In this context the term minimal does not refer to a necessarily minor or unimportant impairment but rather to (presumed) neurological involvement which is not readily and grossly demonstrated. The diagnostic and descriptive categories included under the term minimal brain disfunction refer to children of near, average, or above average general intelligence with learning and/or certain behavior abnormalities ranging from mild to severe, which are associated with subtle deviant functioning of the central nervous system.

These may be characterized by combinations of deficits in perception, conceptualization, language and memory, and control of attention, impulse or motor control. The U.S. Department of HEW in its NINDB Monograph #3 stated that primary reading retardation is one of the ten most cited characteristics.

B. *Lateral Dominance:* Language, it is well known, is represented cerebrally in the dominant hemisphere. Typically, the dominant hemisphere is the left in right-handed people, and the right in sinistrals.

Damage to the language areas of the language-dominant hemisphere can be tolerated in the neonate, as the developing function is transferred to the other hemisphere. But in older children and adults, similar damage produces aphasic disorders. Since no dominant-hemisphere defect can be demonstrated in the brains of many children with developmental language difficulties, the hypothesis has gained credence that they do not establish a dominant hemisphere. Their language difficulty and, in the case of reading, their difficulty with the written language, is thus attributed to a hypothetical mixed lateral dominance.

Clinically, mixed lateral dominance is supposed to show up as in right-handedness and left-eyedness, or in various other combinations of limb, hand, and eye preference. Unfortunately, the tests of lateral preference cannot be made independently of the secondary effects of learning. An even greater weakness of the tests, and one almost always overlooked, insofar as retinal function may influence eye preference is that the optic nerve from each eye supplies fibers to both sides of the brain.

PHYSICAL

A. *Endocrine and Metabolic Disorders:* There is no known relationship between errors of biochemical functioning and any specific reading syndrome according to most medical authorities. However, some researchers feel that a hormonal imbalance is suggested by the feminine appearance of some boys with reading disabilities.

B. *Optical and Ocular Defects:* Many ophthalmologists state that visual defects lead to reading handicaps only when acuity is reduced by half or more, and that it requires extremely gross impairment of the peripheral organs of vision, and of the optic nerves to interfere with the capacity to learn to read.

Optometric specialists present a different point of view. In developmental optometry, vision is now being considered as a matter of getting meaning, and the conservation of vision, particularly in the young child, goes far beyond the detection and correction of refractive error.

Optometric educators feel that reading has always been recognized as a visual activity, but inadequate attention has been given to the fact that all academic subjects are primarily a visual activity. The very fact that printed symbols are utilized in every phase of the communication of information justifies in their minds the statement made by the optometric profession over thirty years ago that more than eighty per cent of our knowledge comes to us through the visual system. This means that more than forty million children are largely dependent upon their visual abilities for success in the academic environment.

C. *Audition:* Peripheral hearing loss, if diagnosed, may be incidental to the specific reading syndrome. It is more likely that there may be a degree of so-called central impairment of the hearing and speech language function.

There is increasing evidence that children with normal pure tone auditory thresholds may nonetheless do poorly at discriminating speech sounds and may not be able to integrate information between sense channels, as in the task of converting auditory to visual signals. These deficits may stem from central nervous system pathology or from faulty perceptual experience.

INTELLECTUAL FACTORS

Intellectual defect can be expected to limit reading achievement. Such failure will not be specific to reading, but part of an all-round learning defect. The occurrence of reading disability may be present in all ranges of I.Q., even in the top one per cent. The assessment of this factor requires individual clinical examination by a competent psychologist and cannot be based upon group testing.

Unfortunately, most of the measuring instruments are tests that require reading; yet often they are given to students who cannot read or who have not learned to read effectively. There is considerable variability between the different capacity-measuring instruments. There also does not appear to be a typical profile of Wechsler's subtests for these remedial readers.

The intercorrelations of the tests in the WISC for 240 remedial readers studied by the author were considerably smaller than the Wechsler's standardization and expectations. In fact, twenty of the fifty-five intercorrelations in the study were negative. A factor analysis possibly might reveal some cluster, but the present data do not indicate a specific profile. Of course, even individual intellectual evaluations will vary at different testings.

Dr. Keith Conners and Dr. Leon Eisenberg conducted a study to evaluate the results obtained by Headstart in Baltimore which enrolled some 480 children in a public school-run program and 65 in a church nursery (4). They tested the Headstart children in the first week of the program, in its sixth and final week, and again one month later when the children entered kindergarten. At the same time, they tested an additional 420 children from the same neighborhoods, attending the same schools, but who had not had the summer enrichment program. These children served as controls to permit them to determine how much, if any, change resulted from Headstart. The test employed in this phase of their study was the Peabody Picture Vocabulary Test.

The differences between each pair of Headstart tests are statistically significant, and the Headstart children were clearly superior to the controls when both entered school in September. However, despite the marked improvement, the Headstart mean scores were still well behind those for a group of 5-year-old non-slum children.

SPATIAL-CONCEPT ORIENTATION

Difficulties of spatial orientations and concept formation may have a part to play in the etiology of severe reading disabilities. The underlying difficulty appears to be a difficulty in directional orientation of the body, its limbs and its digits in the dimensions of right-left and near-far. The problem with directional sense that may be present in reading disabilities pertains to the directional orientation of alphabetic characters and their appendages, and to the directional sequence of the serial arrangement of letters to make a word, and words to make a sentence. Money states that related difficulties appear in the reading disability's confusion over conceptual opposites, like in-out, back-front, before-after, yesterday-tomorrow, and so forth (9). But the conceptual problem is even deeper and affects the very process of concept formation and refinement. The specific reading disability sees a cup, as we all do, remaining a cup, whatever point of the compass it faces, and even with its handle missing. The trouble is he does the same for alphabetic characters and words that should change their significance when they change their direction, or their directional sequence, respectively.

SEX ASSOCIATED FACTORS

Most observers agree that learning problems are far more common in boys than in girls. The reason commonly given for this is that child rearing practices and other social pressures centering largely about the role of the male child as the potential primary source of economic support for the family cause emotional problems which lead to his learning problems.

Bentzen has pointed out that physiological and maturational factors may play an at least equally important role, since the human male organism matures at a slower rate than the female (2). Thus, she advances the hypothesis that some of the behavior disorders and learning problems among boys may be the result of stress response of an immature organism to the demands of a society which fails to make appropriate provisions for this biological age differential.

Dr. Gallagher suggests a hereditary factor which is apparently sex linked and produces a tendency to specific language disability more frequently in males than in females (6). Stuttering and defects in color vision are also more common among boys than girls. Dr. Gallagher supports the Orton Theory that specific language disability is a result of the failure to develop a distinct dominance of one cerebral hemisphere over another.

Pasamanick noted in his famous study that more males are subject to spontaneous abortion and more males exhibit prenatal complications which interfere with normal development (11). Since the brain is one of the most vulnerable organs and there is also a higher ratio of boys than girls among obviously brain damaged cases, a possible explanation for the preponderance of boys among reading disability cases exists.

Eustis calls attention to the fact that all the symptoms of specific reading disability are found normally in infants and young children (5). The symptoms attract attention only when they persist. Neural myelination is widely believed to be associated with neuromuscular maturation in the growing infant and young child. Though the rate of development varies from one child to another, in general girls are one month or more ahead of boys. It is widely held, though not absolutely proved, that full attainment of any skill depends first upon the myelination of the motor and association tracts concerned and second upon practice. Since neuromuscular maturation and myelination are clearly related, the observable development of neuromuscular maturation may be considered indicative of the hidden development of myelination, thus leading to the assumption that myelination is completed earlier in girls than in boys.

A psychoanalytic theory of reading disability has been noted by Walters (14). It is related to Freud's theory concerning hysterical blindness. There is supposed sexual significance of reading that produces fear or avoidance of looking at printed material, with aggressive behavior, and an inadequate identification with one's own sex.

Silverman views the reading disability as a manifestation of a disorder in ego-function.

Hurlock sees reading disability as a developmental problem stemming mostly from environmental and cultural pressures and their resultant emotional effects (7). How one feels about an object, person, or situation depends greatly upon whether one is male or female. From earliest childhood children are trained to think and behave in ways appropriate for their sex. The meanings they associate with different experiences are bound to show this reflection. She believes our culture does not expect from boys the same behavior patterns as girls, and so their training is different. The drives of aggression and achievement are more persistent in boys, while the girls show more dependency and desire for social prestige. Boys are more rebellious against discipline and less willing to conform to rules. There is greater tolerance for boys' misbehavior ("Boys will be boys"), and since they are given more freedom, they misbehave more in school and at home. When teachers are female, the boys are more hostile than girls, and the teachers are more hostile to the boys. This situation probably arises because the teacher either is unaware or chooses to be unaware, of what the term "normal" male child means in our culture, and attempts, often unsuccessfully, to make boys conform to behavior more appropriate for girls. Sensing the disapproval of the teacher, and thereby encountering more punishment in school, boys increase their dislike for the teacher, work below their capacities, and create disturbances in the classroom.

PSYCHO-SOCIAL

Individual psychopathology is a frequent companion of reading retardation. School difficulties are among the major presenting complaints at every psychiatric clinic for children; the literature reports that in a substantial number of cases, a psychiatric disorder is a source of the reading problem.

At the same time, it must be recognized that the reading difficulty is in itself a potent source of emotional distress. Embarrassed by fumbling recitations before his peers, cajoled, implored, or bullied by his parents and his teachers to do what he cannot do, the handicapped reader becomes disturbed about the reading process. Many of these children identify with non-learning adults and peers and expend much of their energy resisting learning. In fact, they appear adjusted to a non-learning self concept. When they do learn, they actually become maladjusted.

Axline and Lecky have postulated that poor reading may result from inconsistencies in the attitudinal system of a child, or from difficulty in resolving a conflict between a concept of self as a poor reader and a concept of self as a good reader (1,8). A study of Bills, using non-directive play therapy with a group of retarded readers, suggests that significant gains in reading may be accomplished in therapy alone (3).

Extensive studies conducted in Baltimore County, Maryland, have attempted to evaluate the effectiveness of remedial reading with psychotherapy in the public school system. Unfortunately, it has been impossible to effectively control the variables for large groups of children and psychologists. The objective evidence at this time is still inconclusive. Nevertheless, many teachers are of the opinion that some therapy or assistance must be given to all severely retarded readers. Severe reading disabilities produce derivative emotional and personality disturbances with uncanny regularity.

The assignment of values to oneself is probably closely related to the values of others who are significant in one's life. The child probably evaluates and values himself as he feels that these "significant others" evaluate him on the basis of their actions toward him.

Included in this process is the process of goal setting that is constantly operating, and the continuous comparing of the goal to which one aspires and the present performance one feels he is achieving.

The author believes that many retarded readers, particularly secondary pupils, have such a low value system, such a negative level of aspiration, such a poor sense of self-worth as far as academic achievement is concerned that they cannot succeed in school. Even if we are successful in teaching them their basic elementary reading skills, their value system is so warped they cannot utilize or maintain these skills.

To test this hypothesis, a group of 84 functional junior high slow learners who had been placed in low 7th grade classes for children with "low" capacity (below 90 on a group I.Q. test) and achievement (below 3rd grade reading level) were studied.

Parents and former elementary teachers were also consulted. The 252 people were asked to check a rating scale. They were asked to check the place on the continuum where they felt the pupil was located as far as his or her capacity to achieve in school was concerned.

1. Over 78% of the retarded readers had a subtest of the WISC (Verbal or Performance) that indicated normal potential.
2. 39% of the Full Scale I.Q.'s indicated average or better ability.
3. Only 7% of the pupils had average ability, according to the elementary teachers.
4. Only 14% of the pupils had average ability, according to the self-rating of the children and the parents.

When parents fail to reinforce a child for good school performance or to chastise him for academic misbehavior, when they convey a belief that school success bears little relationship to ultimate occupational attainment, when they share with the child a view of school authorities as repressive agents employed by a society hostile to their values, they provide little support for the development of achievement motivation. This concept may have important implications for the inner-city children.

Eisenberg reports that if a child does not hear language, he will (4) not speak. If he is exposed to a less differentiated language experience, he will speak and understand less well. The slum child has had less training in listening to sustained and grammatically complex speech, less exposure to the extensive vocabulary of our language, and less reinforcement for his own verbal efforts. He exhibits defects in auditory attention and perception, performs less well on vocabulary tests (especially when challenged by abstract words), and is less responsive to verbal instructions in the classroom.)

PEDAGOGICAL INOPPORTUNITY

Lack of schooling, broken schooling or improper teaching methods may, of course, bring about inability to read. Few long-term studies of non-learning children are available. Those that are available do not prove very much. To what extent a given child's improvement in a special program is due to the program, and to what extent his improvement is due to other factors inherent in the passage of time and growth of the child, usually cannot be stated from the studies.

It is appropriate and necessary to point out at this time that one of the major problems inherent in the identification of reading disabilities is that traditionally educators concerned with the problem have often relied almost exclusively upon achievement scores in standardized tests. A severely retarded reader is considered to be a pupil retarded two or more years by standardized tests. This rule of thumb screening criterion can be dangerous and misleading. Standardized tests of reading achievement do not always indicate the pupil's instructional reading level.

In our study, reading achievement scores compiled within a four-month period before instruction was initiated demonstrated the wide variation between standardized and informal tests. There appears to be about a two-year difference in favor of the standardized tests between standardized and informal evaluations.

Eisenberg states that under this heading, every audience will expect some discussion of the "look-say" (whole word) method versus phonics (4). Attacks on the look-say method have their fad; they appeal to traditionalism and suggest a cheap and easy answer to present problems by returning to the ways of the good old days. Such evidence as there is indicates that the average 1st grader learns equally well by many different methods. The excellence of the teachers and a class size small enough to permit individualization of instruction are probably more important than the choice of method. An either-or formulation is in any event absurd; a competent teacher should know the many ways of teaching reading in order to capitalize on the ability profile of the particular child.

Now let us look at an actual school program for these remedial readers.

The elementary child reports to the building at 9:00 a.m. each morning and is picked up at 11:40 a.m. and returned to the regular school for the afternoon session. The parents must provide transportation. The secondary students are picked up at their regular school each day and transported to the clinic by 12:45 p.m. Classes are dismissed at 3:30 p.m., and parents make arrangements to call for their child at that time.

Seven PTA meetings are scheduled during the school year. Three meetings are conducted by the reading clinician who conducts a highly structured PTA meeting. The other four meetings are headed by a visiting teacher trained in Family Life Discussions. The parents have an opportunity to discuss some of the things—either old or new—that have been bothering them. Here the parents see that they are not alone; other parents have similar problems; other children share personality changes. In many cases parents can help each other solve some of these pressing issues. The whole program is conducted in a non-directive, relaxed fashion and acts as a type of catharsis. The psychologist and reading clinician are there as observers and only join in as consultants when requested by the parents.

Whenever possible, the programs are so structured in the local school that the youngsters attend classes and participate in activities requiring limited reading and writing skills. This arrangement is, of course, much easier to do in the secondary program. However, we have found in the fourth, fifth, and sixth grades where reading is conducted in the morning that the pupils can meet success in the afternoon in some subjects that do not bear directly on the reading area of the language arts program. Ideally, the reading specialist will work with about seven youngsters in both the morning and the afternoon session.

Grouping as far as instruction is concerned is very fluid. It varies with the immediate needs of the individual.

The program is so geared that the youngsters have a wide variety of high interest, low reading level material with a variety of supplementary material such as tape recorders, filmstrips, slide projectors, hand and eye coordinators, primer typewriters, visual perceptual activities, and listening parts material. During the day, a certain number of youngsters will visit with the psychologists and speech pathologists for individual and group therapy.

Extensive studies conducted during the program have attempted to evaluate the effectiveness of remedial reading with psychotherapy in the public school system. Unfortunately, it has been impossible to effectively control the variables for large groups of children and psychologists. The objective evidence at this time is still inconclusive. Nevertheless, many teachers are of the opinion that some therapy or assistance must be given to all severely retarded readers.

The reading teachers in the program have constant conferences either by telephone, letter, or in person with the classroom teacher to integrate and correlate the two programs. The reading teachers also meet with the psychologists to discuss how the youngsters are progressing in the program. Once a month, the entire staff meets in an evaluation program. Whenever the student is academically and psychologically prepared, he is returned to the corrective or to the developmental program. If the youngster is not meeting any success, he may be returned to the local school for further referral, study, and recommendations.

For some time, every remedial pupil was exposed to one specific pedagogical technique. The selection of the particular pedagogical procedure depended to a large extent on the training of the clinician and the bias of the center. Educators embrace the philosophy of individual differences, but too often, accept the "one right way" of teaching reading to all retarded readers. Pupils and teachers alike have had to adjust to the one procedure instead of the teacher and the technique adjusting to the needs of the child. Too often teachers have followed one policy blindly because some authority has said, "This is the way."

Experience has demonstrated the fact that there is no magic panacea for all children. These severely retarded readers have one consistent syndrome, besides their retardation, and that is inconsistency. The clinician must select the appropriate technique through diagnostic teaching and use all sensory pathways to reinforce the weak memory patterns.

Some reading specialists employ the Fernald approach using a VAKT in an analytical breakdown. Other clinicians utilize the Orton approach using a VAKT in a synthesis attack.

Still other teachers, in an attempt to find a more effective method of meeting individual needs and differences, have introduced a multisensory total language-experience approach with word bank "à la" Dr. Russell Stauffer.

The important thing to remember is that the method or combination of methods that helps the child is the right method.

It is my sincere hope that this review with all of its conflicting etiological viewpoints and different pedagogical procedures will not discourage the formation of interdisciplinary projects. It is hoped that members of the team will realize some of the problems inherent in a joint program and attempt to develop a truly effective staff. If possible, a minimum recommended team will consist of the following specialists:

1. Educator
2. Psychologist
3. Language consultant
4. Visiting teacher or social worker
5. Pediatrician

The following special consultants should be on call:

1. Neurologist
2. Ophthalmologist and optometrist
3. Audiologist
4. Psychiatrist
5. Physical Education specialist

My bias shows when I state that the educator can most effectively head up the diagnostic team. I do not believe that severe reading disabilities call for medical diagnosis and an educational prescription. However, if educators do not assume their responsibilities, other disciplines can be expected to carry out the program.

A proper diagnosis is a dynamic one which explains the nature of a disability and implies a prognosis and treatment. How absurd it is for parents to take their child to a specialist, complaining that the child has not learned to read, having the specialist conduct many tests, write reams of reports, only to have the specialist conclude that the child has a "reading disability." Too many so-called diagnoses are merely a restatement in technical jargon of the presenting problem.

However, a knowledgeable educator will be aware of the information needed for the institution of an effective remediation program. He can refer the handicapped child to the appropriate special consultant for a specific diagnosis.

Until a magic test can be devised, adequate diagnostic study will be expensive, but can one seriously advocate public expenditures that will run to incalculable millions of dollars for the creation of special classes for the "retarded reader" without, at the same time, insisting that such children be identified properly?

In an age of specialization we have not cultivated the interprofessional communication and exchange of ideas which are necessary for our mutual understanding of these complex problems. But an interdisciplinary approach, investigating and refining diagnostic and pedagogical techniques, is the only logical attack.

Specifically, education is faced with three major responsibilities:

1. Educators must develop the best techniques to identify those who cannot learn to read by our normal techniques that are so successful with most of our children. This can be best accomplished in an interdisciplinary manner with effective interdisciplinary communication and cooperation.

2. Educators must develop the most effective pedagogical procedures for all children who cannot learn by normal techniques.

3. Educators must develop the format or school organization to implement (1) and (2).

If we constantly reevaluate and improve what we have, some day we will find what is needed—a program to rehabilitate these lost children and give every child in our schools an opportunity to develop his language abilities to the highest level of his capacity.

REFERENCES

1. Axline, Virginia. "Non-directive Therapy for Poor Readers," *Journal of Consulting Psychology*, 1947, 11:61-69.
2. Rentzen, Francis. "Sex Ratios in Learning and Behavior Disorders," *American Journal of Orthopsychiatry*, January, 1963, 33:92-98.
3. Bills, Robert. "Non-directive Play Therapy with Retarded Readers," *Journal of Consulting Psychology*, 1950, 14:140-149.
4. Conners, Keith and Eisenberg, Leon. Unpublished Keynote Address presented to Association of State Supervisors of Reading and English. University of Maryland. 1966.
5. Eustis, Richard. "Primary Etiology The Specific Language Disability," *New England Journal of Medicine*, August, 1947, 238:243-249.
6. Gallagher, Russell. "Can't Spell, Can't Read," *Orton Society Bulletin*, Boston, 1953.
7. Harlock, Elizabeth. *Child Development*, 4th Edition, New York, McGraw-Hill, 1964, pp. 233-234, 479-480, 528-529, 615-616, 637.
8. Leiky, P. *Self-Consistency; A Theory of Personality*. New York, Island Press, 1945.
9. Money, John. "The Disabled Reader," Unpublished paper presented to Interdisciplinary Symposium, Maryland State Department of Education, 1966.
10. Orton, June. "The Orton Story," *Bulletin of the Orton Society*, 1957, 7:7-8.
11. Pasamonik, Benjamin. "The Epidemiology of Behavior Disorders of Childhood," *Research Publications of the Association for Research on Nervous and Mental Disorders*, December, 1954, 34:397-403.
12. Schiffman, Gilbert. "Reading Retardation," Unpublished paper presented to Interdisciplinary Symposium. Maryland State Department of Education. March, 1966.
13. Silverman, Jerome and Fite, M. "Clinical Findings in Reading Disability Children—Special Cases of Intellectual Inhibition," *The American Journal of Orthopsychiatry*, April, 1959, 29:293-313.
14. Walters, Richard, Van, Loan, Malle and Crofts, Irene. A Study of Reading Disability." *Journal of Consulting Psychology*, 1961, 25:277-283.

Application of Operant Conditioning In a College Reading Center

David M. Wark
University of Minnesota

The technique of operant conditioning has been applied creatively to significant problems of elementary education. Roger Addison and Lloyd Homme worked with educationally limited children on an Indian reservation (1966). They used a technique of reinforcement smorgasbord to teach basic skills. The child entered a behavioral contract with one of the investigators. To wit: if Johnny did 5 problems in his arithmetic program, he could spin Lloyd around in a swivel chair for 1 minute. There were, of course, more standard reinforcers available, and the children could take their choice. Gradually the cost in frames of math for one minute of spinning was increased. This behavioral infllation worked admirably. Eventually, the students were even willing to do X frames of reading for a chance to work Y minutes on arithmetic.

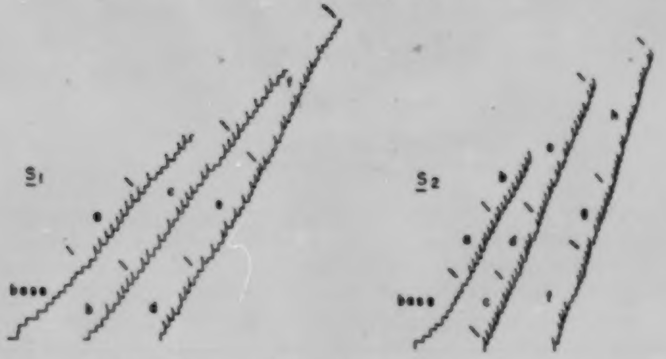
The basic notion of operant conditioning is deceptively simple (Honig, 1966). If a certain well specified piece of behavior (called an operant) is followed by a certain stimulus (loosely called a reward or more technically a reinforcer) that same piece of behavior tends to recur in the future. The operant is said to have been reinforced. The problem for the teacher is to specify the behavior to be monitored and the stimulus to reinforce its future occurrence. Basically, the reinforcer can increase the occurrence of the behavior over time, or more specifically, its *rate*. This paper describes several instances of the use of operant conditioning techniques when working with adults in the college reading and study skills center at the University of Minnesota.

The first and most obvious application of operant techniques is to the control of reading rate. Raygor, Wark and Warren (1966) seem to be the first investigators to have applied this approach to increase reading rate by normal college students. They demonstrated that students could increase their rate by a factor of 2 to 2½ times in one 45-minute training session. The behavioral measure of reading was lever pulling, which exposed successive portions of an interesting, college-difficulty adventure autobiography (Sanderson, 1937). Pulling a lever is exactly analogous to turning a page, a universally accepted measure of the multitudinous behaviors subsumed by the term "reading rate." The reinforcer, supplied by the investigators for higher and

---

[1] The investigations reported in this paper were made possible in part by a grant in aid of research from the Graduate School, University of Minnesota.

FIGURE 1



	INTERVAL	base	a	b	c	d	e	f	g	h
S1	TIME CRITERION	24"	25"	20"	18"	16"	14"	12"		
	READING RATE	222	250	250	286	308	334	400		
S2	TIME CRITERION	23"	20"	18"	15"	13"	10"	9"	10"	7"
	READING RATE	286	400	400	500	500	571	600	667	733

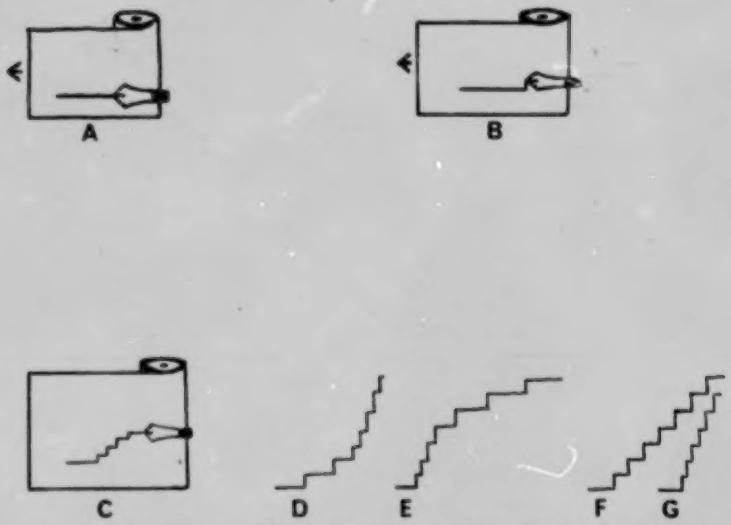
Increase in reading rate using a green light as positive reinforcement for reading above time criterion (From Raygor, Wark and Warren, 1966)

higher rates (shorter intervals between lever pull-page turning) was a pale green light shining up through the page. If the higher rate was not maintained, the student was not presented with the reinforcing stimulus.

The results of part of the study are presented in Figure 1. The legend on the figure indicates that student 1 increased his rate from 222 words a minute to 400 words a minute. Student 2 increased his rate from 286 words a minute to 733 words a minute. This figure also contains a graphic display of reading rate data gathered by a cumulative event recorder. This machine may require some interpretation for those not familiar with cumulative response curves.

Figure 2 contains an idealized picture of a cumulative response recorder. A strip of paper is moved at a constant rate under a movable pen (A). Each time the student pulls the lever on the exposure machine, the pen is displaced one unit to the left (B). While the student is reading, the pen continues to mark parallel to the axis of the moving paper. The recorder produces a stair step curve of reading rate change (C). The faster the student reads, the shorter the interval between the displacement marks, and consequently, the steeper the slope of the lines (D). If the student slows down, the curve tends to flatten out (E). If two curves tend to converge at the top (F, G), the rates are not equal. The steeper curve indicates faster reading.

FIGURE 2



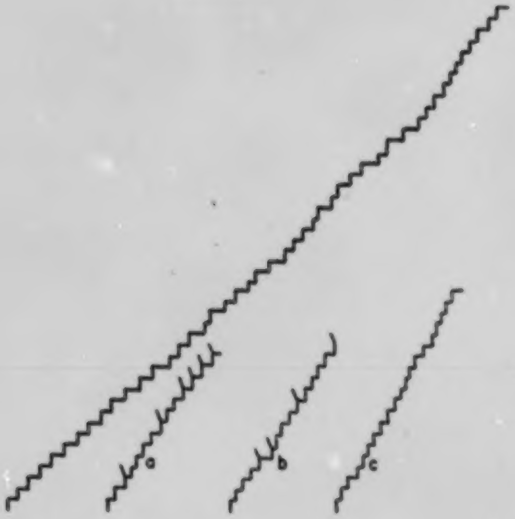
Idealized representation of a cumulative recorder mechanism and curves (Adapted from Holland and Skinner, 1961)

In Figure 1 we see that the curve for both students becomes progressively steeper. The curves are closer at the top than at the bottom, indicating that they are not parallel and that the students are indeed increasing their rates.

The criteria for reinforcement are also indicated in the legend of Figure 1. The *time criterion* is the interval between lever pulls that the student had to beat in order to receive a green light reinforcer. Thus, for student 1, his base rate, without any reinforcement, was an average of 24 seconds for 100 words. In segment *a,* in order to receive a green light he had to read faster than 25 seconds. Each upright blip on the curve indicates that he did receive a green light. In section *b* of the chapter, his criterion was 20 seconds, and he averaged 250 words. By segment *f* he had been shaped to 12 seconds per 100 words and was reading at an average of 400 words a minute. The blip on the curve indicates that he was not getting constant reinforcement. That means that sometimes he was under the criterion, and sometimes he was over. But on the average his rate increased quite markedly.

The operant techniques for increasing rate need not be limited to recreational reading. A male junior college freshman came to the Reading and Study Skills Center asking for help in improving his textbook reading rate. He had a basic psychology text by Sanford (1961). The student was instructed to mark his text into 100 word

FIGURE 3



SECTION	BASE	a	b	c	COMP 86%
PASSAGES	4500	1400	1400	1800	
CRITERION	—	240+	240-	—	
RATE	173	235	250	305	

Increase in rate of reading a textbook, using a red light as a positive reinforcer (a), a buzzer as an avoidance (b) and extinction (c) (From Wark and Raygor)

units, using a felt tip Hi-lighter pen. This pen contains a transparent yellow ink that had the effect of indicating visually the limit of the passage, without interfering with reading. He was instructed to read his book at a comfortable rate and every time that he came to a yellow marker he was to push a hand switch which was connected to the cumulative recorder and indicated his reading rate. He reported no trouble reading with the yellow marks in the book.

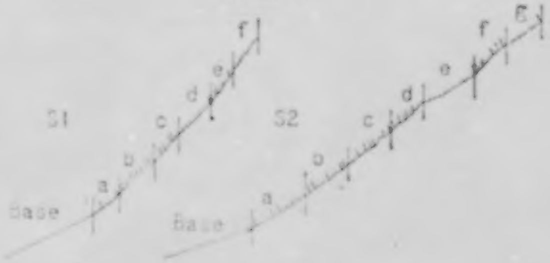
The student was instructed to read for one hour and push the button when appropriate. The results of that 60-minute segment are recorded in Figure 3 as base. This is a non-reinforced base rate situation. His reading rate for that chapter was 173 words a minute.

The next day he returned to the laboratory and began reading the next chapter in the book. He was told that if he beat his previous rate a red light placed in the booth with him would flash. He was instructed to "get as many flashes of the red light as you can." The results of that contingency can be seen in segment *a*. His reading rate increased to 235 words a minute. He was then shifted to an avoidance situation. If he did not meet a criterion rate, he would hear a buzzer every time he pushed the button. Under that condition his rate increased (segment *b*) to 250 words per minute. The results of that simple little comparison suggested that for this student at least, avoidance was the more effective training situation. (The conclusion was only tentative, of course, since there was no control for sequence of training.) For the final section of the chapter, the student was told, "I'm going to turn off both the light and the buzzer. Go ahead and read at whatever rate is comfortable." His rate under extinction (segment *c*) was 305 words per minute, faster than either of the reinforced training conditions. This observed initial increase under extinction is typical of operant investigations.

Sanford provides a set of multiple-choice comprehension checks on each chapter of his book. In the chapter under study the student earned an over-all 86% on the comprehension test. Clearly he had increased his rate while comprehending the material. On four subsequent chapters of the same book, the student earned an over-all average of 77% on the comprehension tests. This was under a wide variety of contingencies, from continuous reinforcement by red light to a periodically presented avoidance of the buzzer.

The work with this single student raised some interesting points about types of feedback for operant control of reading. Apparently either a light or a buzzer can be used for feedback. It can be used to

FIGURE 4



INTERVAL	BASE	a	b	c	d	e	f	g
TIME CRITERION S1 (seconds)	--	10	7	5	EXT	5	EXT	
RATE - W/M	195	214	330	491	429	517	634	
TIME CRITERION S2 (seconds)	--	[illegible]	12	10	7	EXT	7	EXT
RATE - W/M	141	228	225	275	395	282	397	253

Reading rate increase by auditory avoidance conditioning

indicate responses faster than criterion or responses slower than criterion. Will pure avoidance work to increase reading rate? Which is more effective, avoidance or positive reinforcement?

In a study to answer some of these questions, two college freshmen women were trained on a pure avoidance schedule, using Sanderson's material. The results are presented in Figure 4. Clearly, they increased their rates. An extinction, or non-reinforced section was inserted into the training at various times. The effects were not consistent. Subject 1 decreased her rate in the first extinction interval, but increased in the second. Subject 2 decreased in both of hers, and did not make as great a gain overall. But clearly, avoidance does work.

A study with upward bound high school students in the summer of 1966 suggests that avoidance may actually be more effective than positive reinforcement (Wark, 1966). Volunteer students were run under a variety of conditions, and for various lengths of time. But in all cases, the conditions of reinforcement with a light or avoidance signaling with a buzzer were alternated. Each student served as his own control, under two different conditions. The sequence of conditions was alternated for various students, i.e., some got a light first, some a buzzer.

The results are presented in Table 1. Avoidance seems to be at least as effective, and in the early cycles significantly more effective,

TABLE 1

CYCLES

	1	2	3	4	5	6
Subject	L - B	L - B	L - B	L - B	L - B	L - B
1	163-174					
2	202-179	188-195				
3	500-526	482-500	513-606	588-645	727-909	800-930
4	317-447	533-556	588-556	625-606	625-645	769-745
5	229-244	260-253	282-284	241-280	274-268	219-275
6	211-198	217-235				
7	308-298	363-351	351-333	364-345		
$\overline{D}$	-19.4	-7.8	-11.2	-10.5	-65.33	-60.66
σ_D	51.76	14.50	56.26	43.89	101.87	87.09
t	2.62*	3.24*	.79	1.20	1.92	2.05

*$P < .05$

Mean and standard error of rate differences using light (L) as positive reinforcer and buzzer (B) as avoidance signal, upward bound students (From Wark, 1966)

in producing rate gain. There is reason to expect that if there were sufficient students who had run through all six cycles the differences in favor of avoidance would have been even more pronounced.

Although operant conditioning techniques work on rate of behavior, there may be other aspects of the behavior, correlated with rate, that are of great interest in study skills centers. One young lady came to the Center asking for help with her handwriting. Her advisor had referred her because she was failing her written exams. She studied well, knew her material, and could discuss it satisfactorily. But no one could read her handwriting. This was a long standing problem that showed up in all her writing. It was not limited to exams, when she might have been under some unusual pressure. I decided to treat her problem as if she were writing too fast, and see what happened when she was reinforced for writing slower.

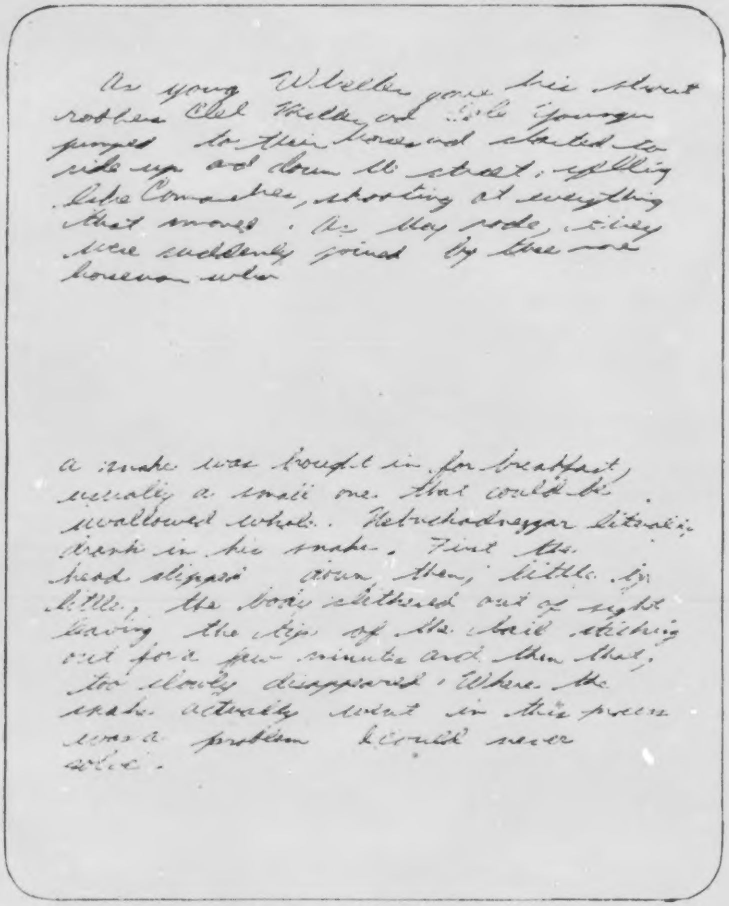
She was asked to copy 25 word passages (Simpson, 1950). I found that she was writing that much in an average of 60 seconds. She was placed on an operant slow down schedule, under which she avoided a buzzer only if she wrote slower than a certain rate. She used a special heavy and thick ball pen, with red ink. She was told to use that pen whenever she wanted to write something that another person was to read. For her own memos and class notes, which she alone would see, she could use anything except her special pen. She was asked to come back for two more slow down sessions one week apart. At the end of the 3rd session, she was writing 25 words in a mean of 72.9 seconds. Pre- and post-training samples of her writing are presented in Figure 5.

A majority of judges have agreed that the bottom, post training sample is the more legible. The differences are not primarily due to letter form. In the second sample, the writing is more influenced by the lines on the page. In the first sample, this was not the case. The writing dips and swoops and departs from the horizontal.

One criticism of this illustration of operant techniques is, of course, that it misses the point. The student would have been better helped if told to write neatly and then given training and exhortation in better penmanship. Perhaps the Palmer method should have been applied to the seat of the problem. I think it safe to assume that these methods had already been tried, by friends, parents, and a succession of teachers. It was precisely because they didn't work that the young lady came to the Study Skills Center and was put through the type of regime that I have described. And in any case, such a criticism misses the point of the report.

This was not a test of the effectiveness of operant conditioning as some other method. It was merely an illustration that the manipulation of rate of behavior may have consequences for other more important properties of that behavior, even if the attempt to manipulate rate was not markedly successful.

FIGURE 5



As young Wheeler gave his silent
robber Chet Miller and [illegible] younger
jumped to their horses and started to
ride up and down the street. yelling
like Comanches, shooting at everything
that moves. As they rode, they
were suddenly joined by three more
horsemen who

a snake was brought in for breakfast,
usually a small one that could be
swallowed whole. Nebuchadnezzar literally
drank in his snake. First the
head slipped down then, little by
little, the body slithered out of sight
leaving the tip of the tail sticking
out for a few minutes and then that,
too slowly disappeared. Where the
snake actually went in this process
was a problem I could never
solve.

Pre (top) and post (bottom) handwriting samples

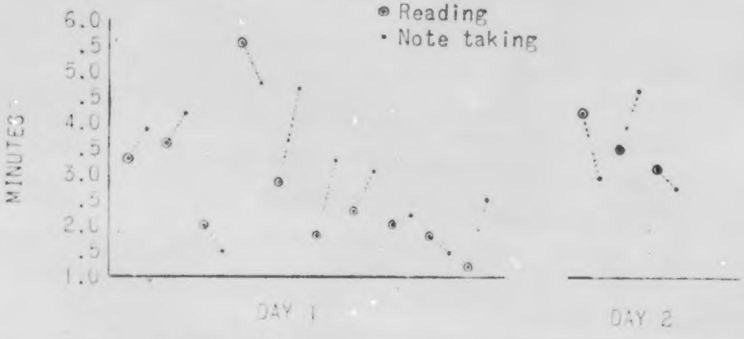
There is another and potentially much more useful application of the operant approach. Operant techniques are extremely useful in gathering fine grain data on student behavior (Raygor, 1963). The reading rate curves reported above, for example, give a precise moment to moment picture of what the student is doing. The data are much more detailed than the usual over-all average rate of a single exercise. Students are typically instructed to keep records of each rate and comprehension exercises, on the assumption that watching a graph line go up increases the probability of future gains. The graph is based on relatively gross pieces of behavior. Consider how much more effective the presumed effect on behavior would be if the student could see the results of much smaller bits of behavior.

There is another advantage to using an operant as a unit for data gathering. A teacher or investigator can profit from the increased precision of data about his student or subject. For some time I have been interested in the relation of text book reading and study note taking. Gates (1917) suggests that the more times a student spends in recitation, the better he will retain what he has learned. In fact, these data are cited quite frequently in many How to Study manuals. As a first step in really utilizing these data, it might be interesting to find out how much time a student actually spends in reciting by taking notes.

In one brief methodological study, a student spent some time reading and taking study notes in the laboratory of the Study Skills Center. She had previously marked her book into 100 word passages using a yellow magic marker. Each time she came to the marker she pushed a button that was connected to a cumulative event recorder. Whenever she wished to stop and write a note she pushed another button that reset the recorder pen back to base line. Since the recorder paper was moving at a constant rate of speed, it was a simple matter to establish the amount of time spent in reading and notetaking, and to examine the sequence of those two behaviors. The results of two sessions are reported in Figure 6.

For the two days, we note that the student spent a mean of 2.88 minutes reading and 3.24 minutes writing. We also note that there is a gradual decline in the time spent in each activity before changing to the other. This shift may be built into the material the student was

FIGURE 6



Time spent in alternating reading and note taking on two days by a single student

reading. The data would be consistent with a book in which the author wrote successively shorter passages before changing topic or before presenting a note-worthy point. Looking through the book, I suspect that such is not the case, however. I think that these data reflect a fact of life for this particular student. She may shift from one activity to another in a more or less predictable way. We might suspect a decreasing "attention span," defined as increasingly frequent shifts of behavior, until she gets to the point where she just stops.

If we leave aside the possible diagnostic information that this type of data gathering provides about this particular student, we still have certain more general applications. This approach yields some interesting base rates of the amount of time a student spends in recitation. We might want to see what, if any, effect a lecture on the value of recitation has on this base. We might wonder what the relation is between speed of reading and amount of time spent in notetaking. Does faster reading, taught in the Center, transfer to faster work in other aspects of study? In fact, we might wonder if rate on practice material transfers at all. Another way to use this sort of data is to pinpoint exactly when in the reading act the student stops to take his notes. Does he read a whole section or chapter and then go back to the beginning, or does he read a little, look at an illustration, write a little, read a little, etc.? The technique of marking a text into short, equal units could be used to develop a very good behavioral measure of readability.

I would be the first to admit that the kinds of records that I have described could be gathered by anyone with a short pencil and long patience. But I want to make two points. First, operant data can be gathered more economically and more reliably with the kinds of recording equipment I described. Once the basic set-up is established, and the behavior of interest is specified, it is easier, but by no means necessary, to let some piece of hardware do the data collecting. Second, and much more importantly, it is the acceptance of the "operant point of view" that leads an investigator, or a teacher, to search for this kind of precise, moment to moment data on observable behavior. If one is going to attempt to manipulate the rate of certain actions by a student, the actions themselves must be stated as objectively and precisely as possible. Then, and only then, can we start the search for the appropriate reinforcers. And fortunately since we are dealing with humans and not rats, we have available a large collection of relatively effective and practically free reinforcing stimuli. After all, what does it cost to tell a student, "you didn't do that well, Sidney" or "n[illegible] you're really moving, Melvin!"

SUMMARY

Operant conditioning techniques can be used to produce some fairly rapid changes in some of the behaviors of interest to the staff of a reading and study skills center. These behaviors include reading and handwriting rate. Of course, there may be instances when it is not the rate, but some other characteristic of that behavior which is of interest. In such a case, the direct manipulation of rate may be the most expedient way to get at the behavior in question. Whether or not the best approach is to reinforce faster behavior, or to warn students about slower behavior is at this point a question open to more research. Clearly though, the use of operant techniques, or at least a serious acceptance of the operant point of view, leads to a way of examining student behavior that can not help being productive of new insights into the problems common to a reading and study skills center.

BIBLIOGRAPHY

Addison, Roger and Lloyd Homme, "The Reinforcing Event (RE) Menu," *National Society for Programmed Instruction Journal*, 4, No. 1, Jan., 1966.

Gates, Arthur, "Recitation as a Factor in Memorizing," *Archives of Psychology*, 6, No. 40, 1917.

Holland, James and B. Frederick Skinner, *The Analysis of Behavior*, New York: McGraw-Hill, 1961.

Honig, Werner K, Editor. *Operant Behavior. Areas of Research and Application*, New York: Appleton-Century-Crofts, 1966.

Raygor, Alton, David Wark, and Anne Warren, "Operant Conditioning of Reading Rate," *Journal of Reading*, 9, No. 3, Jan., 1966.

Raygor, Alton, "Behavior Analysis, the New Look in Reading Research," *Philosophical and Sociological Bases of Reading*, Eric Thurstone and Lawrence Hafner (Ed.), *National Reading Conference 14th Annual Yearbook*, Milwaukee, 1965.

Sanderson, Ivan, *Animal Treasures*, New York: The Viking Press, 1937.

Sanford, Fillmore H., *Psychology: A Scientific Study of Man*, Belmont. Wadsworth Co., 1961.

Simpson, Elizabeth, *S.R.A. Better Reading Book 2*. Chicago: Science Research Associates, Inc., 1950.

Wark, David, *Operant Conditioning Techniques for the Educationally Disadvantaged*, In Press.

Wark, David and Alton Raygor, *Operant Conditioning Techniques for Reading Instruction*, In Press.

The Retrieval of Learning Sets by the External Display of Reading Materials

Wendell Weaver
University of Georgia
and A. C. Bickley
Campbell College

One gets the impression that teachers of reading, more often than not, have thought of reading as a display of materials from which the reader extracts some *quality* called "meaning." Of course reading teachers, by the nature of their task, are well aware that there is another level of analysis of the materials relative to the letters and words of the language. This analysis is the discrimination of the particular sign from the set of other signs, as distinct from the sign's function or its referent. Some teachers add another process when the reader has the intention to learn material he is reading.

In general, eye-movement variations may be noted for each of these reading processes. When the reader is concentrating on perceiving letters and words there is a concentration of fixations at the particular locus of the letter or word. When the reader is retrieving parts of his previous learnings, fixations are regular and relatively short in time. There are few regressions. When the reader is learning, there are vertical and horizontal excursions to locate materials further afield than that on the line being read. There are regressions and concentrations on content words. Difficulties arise, however, when one attempts to quantify these impressions. In the first place, confoundings appear. Then too, about 40% of the words do not appear as directly focused upon. It is impossible to tell at any particular fixation the area of acuity which will allow recognition. Fixations appear between words. To complete the confusion, the reliability of the placement of the central focus which is the reference point for measurement is seldom available. Obviously, to date, eye-movement photography has raised many more questions than it has answered (4, 5, 6, 8, 9, 12, 14, 24).

If we consider the gross characteristics of eye-movement photographs, however, even the more reliable type which do not attempt to locate eye fixations relative to a specific part of a text, (24) it is apparent that there are variations in the number and length of fixations when a particular individual reads. While this is not an astounding observation in itself, the fact of variation raises a crucial question for the understanding of the reading process, namely, where is the locus of the control of the movements? If the movements are not all the same size (as they are not) i.e. if they do not cover the same number of significant units each time, some control must operate to determine what units to cover, when to regress, when inaccuracy of fixation has occurred, etc. It is apparent, from the rate with which these decisions have to be made, that conscious control of these parameters is impossible at typical reading speeds (15, 16).

There have been attempts to locate the control of eye-movements in the language display itself. The idea of "training" eye-movement is closely connected with the assumption that reading is controlled by information already present in appropriate units on the printed page. One might say then, language is read word by word and mean by this, that each printer's space marks out a separate language unit which must be processed directly from the display. Eye-movement photographs do not indicate fixations at every word; in fact, as we noted before, some 40% of the words are skipped. This apparent skipping might be an artifact, however, of the inability to determine how far from focus peripheral acuity is extending. The number of words skipped by central focus increases continuously and (using percentage of total words as the measure) linearly, from 5% of six-letter words skipped, to 75% of two-letter words skipped in some 300-lines of eye-movement photographs we examined. Nevertheless if the length of the acuity sufficient for perception were controlling one could count letter-space intervals between fixations and obtain a "near-constant." If one objects that this constant does not appear because parts of words are not meaningful units to process, and thus only a particular part of the "sufficient" acuity span is processed, this explanation itself assigns control to some locus other than the language text.

Taylor asserts that to read "with complete accuracy" one must "see" all the words he reads. The difficulty here is with the word "see." There is the "seeing" of proof-reading where an accurate job requires ignoring the implications of words in order to note the accuracy of their construction. There is the "seeing" of reading a "who-done-it" where the intent to comprehend a puzzling situation is paramount. Here, the situations and their verbal elaborations are ordinarily well known to the reader; it is the particular arrangement that counts and the details of the input of that information are not even thought of. There is the "seeing" of reading Whitehead and Russell's *Principia Mathematica* where practically every sentence, for many of us, is so laden with semantic information that a constant learning is required to keep up with the text.

Many psychologists would classify the above activities as complex processes with elaborate central nervous system controls. It is reasonable to argue, however, that all of reading cannot be a central nervous system operation. Lashley (15) observed that in a rapid sequential operation such as speech production, the discrete acts making up the production of long, rapid sequences have shorter latencies than the maximum transmission rate of fibers leading to and from the central

47

nervous system. Licklider, Stevens and Haynes (16), Quastler and Wulff (22), and Pierce and Karlin (21) have independently, and using different techniques, calculated the information transmission rate of oral reading as 35 to 45 bits per second—the fastest information processing rates which have been demonstrated for any human act. We assume that silent reading is an even more rapid process. Since it is unimaginable, within the framework of a naturalistic science, to have action rates greater than nerve impulse rates, the favored assumption is that peripheral coding allows the triggering of integrated sequences as units. Luria (17) speaks of these sorts of rapid motor acts as the elaboration of "melodies;" Osgood (20) speaking specifically of language calls them "predictive integrations."

The idea of the retina as supplying only afferent information has long supported the proposition that the retina is a passive passageway to the processing capacities of the central nervous system. Investigations by Gershuni, Leont'ev, and Sokolov (17) indicate that the retina incorporates effector elements which tune the peripheral receptors to essential components of the signal being received. One example of this phenomenon is Granit's (11) demonstration that foveal flicker fusion points are raised by a steady light to the periphery and that peripheral sensitivity is enhanced by simultaneous macular stimulation. While these experiments are not concerned with patterns, there is at least the possibility that similar processes might enhance recognition or perhaps set up a more favorable situation for recognition of high-frequency language patterns. It is interesting in this regard to note that in fixation records of first-graders, fixations on the word "the" (in our materials the only word occuring frequently enough to examine in this manner) dropped off with the number of occurrences of the word in the material.

The indications of peripheral control of visual processes do not by any means offer complete explanation of all phenomena. In Tinker's (25) study of eye-movements in reading formulas, the fixations for the prose-part of the context was very similar in pattern to regular prose text. At the formulas themselves, both algebraic formulas and chemical formulas, there was an immediate decrease of eye-movement span and an increase in time of fixation. This seems to be a fairly clear indication that difficult or unfamiliar materials require the exertion of central nervous system control. This control is not directly connected with the external display of the materials in any regular way we could discover. In Frandsen's (9) study of eye-movements in reading objective examination questions, the same phenomenon of control by content is exhibited. Fransen explains the photographs where fixations are clustered around a particular response e.g. in a multiple-choice question with few or no fixations at the other choices, as an item where the subject knew the right answer. When the subjects get unfamiliar items there is an almost letter by letter searching, of all the alternatives. Again these seem to be clear cases of the control of eye-movements by semantic requirements.

Goldman-Eisler (10) has shown that the length of pauses in conversational speech is related to the informational content of the language at that point. The technique was to construct cloze tests for long and short pauses and to demonstrate that the words removed after short pauses were much more accurately replaced than words following long pauses. Pauses less than ¼ second were considered phrase or punctuation pauses and were excluded. In oral reading by an accomplished reader, only phrase and punctuation pauses appear. Eye photographs of the silent reading of familiar material imply a similar situation. That is, reading, in these cases, takes place as if there were no differential information intake for various segments of the reading. This appears analagous to the findings in tachistoscopic studies that as exposure time is increased, an exposure time is reached where all words (whatever their frequency of occurrence in the language) are equally recognizable. Studies of words spoken in noise which show that frequency of occurrence is related to accurate perception of words only when a masking noise is present also seem relevant. The reading of familiar materials is also a well-practiced, habitual action which seldom goes beyond the recognition stage of mental processing. It is only when a task is imposed that interrupts the routine, that large variations occur in eye-movements.

There are a number of investigations which strongly imply that reading is not the continuous-input sort of operation as it is normally pictured, but rather, involves a sampling of the environment. One set of these studies concentrates on apparent periodicies in visual tasks resembling reading (1). Stroud and his colleagues (23) view their data from rotary pursuit studies as indicating sampling by the eyes. Barlow (2) describes perception as occuring early in the total activity of processing information. This chain of operations may be summarized as (a) an input which is partially sampled and selectively perceived, (b) other intervening central nervous system processes such as retrieval, storage, and (c) a feedback to the periphery to guide the next input or to trigger a motor act. These processes are conceived of as sequential, and thus perception occupies only approximately the first third of the cycle.

Such constructions as the one given above are important when we consider such questions as how one can know the next word until he "sees" it. If one answers, there is no way to know, he has made an implicit processing model which assumes a continuous visual input without feedback. To assume that a visual system does not have feedback makes the explanation of the many observations of the operation of constraints exceedingly tedious. It has become common in the last few years to demonstrate that language has sequential constraints—constraints involving at different times letters, words, and semantic content. In this regard, it is interesting to consider what happens when one attempts to have a computer "read" information in a printed form. One obvious approach is to have a "template" set up in the computer. When a matching form is put into the machine, that form is passed into further processing. There are capital letters and small letters. Words have different numbers of letters. Letter by letter identification is slow in computers as it is in people, etc. Most programmers have abandoned the template as a model.

Another approach is to analyze letters and words in relationship to specific shape and context paradigms which discriminate one sign from another. Only certain parts of letters and words are now used for recognition purposes. The judgments used are probabilistic and context becomes extremely important. David and Selfridge (7) say, "even knowing diagram letter of syllable frequencies can improve decisions about letters or phonemes. . . ." They also say that syntactical, grammatical, and even semantic information would improve recognition. The interesting point for this paper is that eventually the computer will not have to "see" every word. Some words in highly constrained positions do not have to be "seen" at all. Many other words are identified from the first few letters. The middle of the word is especially low in information. The first few and the last few letters reduce most of the uncertainty. Bruner (3) has also shown this result using human subjects.

When the organism is "reading," the intent, usually, is to derive significance from the graphic signs. Perception of what is being read at any particular point certainly has a sensory component, but it is not at all clear how much of this component is necessary for the perception to occur. There are some locales within the sentence which are so highly constrained that the sign is determined, for the sophisticated reader, before it appears. This is ordinarily true, however, only if bilateral context is available. For example the missing word in the sentence, "The boys__________going," is much more constrained than the blank in the fragment, "The boys__________." There are instances, however, where the semantics of preceding context highly constrain language elements, occurring in a particular site of the passage. For example, note the following passages:

> "The Pythagorean theorem was the end product of long years of practical experience with triangles. In its abstract elaboration by Pythagoras, this__________"

With a high proportion of successes, the element represented by this blank would be supplied by readers capable of understanding the passage, without viewing a physical representation of the word.

The probability seems high, however, that bilateral context is available to the reader. As the eyes fixate on a particular point of a reading passage, language elements to the right, as well as to the left, are within the viewing area of the reader. Several studies have shown that the major effect of constraint is from five words or less on each side of the constrained word. Evidence derived from photographs of the "reading" eye indicates that words a short distance away from a point of focus are blurred in vision and severe distortion is present when the eye is in motion. Nevertheless, fixations do occur at the rate of four or five a second. Even if only three or four words are "put in" at each fixation, the number of words which seem to introduce most of the constraint would be available in the organism within the maximum limit of one second and in many cases in less time. This input rate would represent a reading rate of some 720-1,200 words per minute. This rate so far exceeds normal reading operations that again the probability is brought to mind that not input but, rather, central processing operations impede reading speed.

Another empirical indication that following context is available for use by the organism is the eye-voice span. If the source of light a subject is reading by is suddenly extinguished, the subject continues to verbalize for some time after the event—he goes on for an average of about five words. These words must have been "put in" and continue in the process of decoding. Processing, then, by this indicator is lagging behind input. Thus, bilateral context would be available. Also, one may observe the phenomenon of regression. Even in good readers there is some regression. As reading materials become more difficult there is more regression. Regression is a rerun of a past input —a kind of redundancy. There is a great likelihood that the input, before the regression, was processed in part. Regression provides a situation which not only allows total redundancy but also supplies, in effect, a longer bilateral context.

Several studies have indicated that bilateral context, i.e. words on both sides of a target word, reduce more uncertainly about the target word than words preceding only or following only, i.e. unilateral context. This appears to evidence that processing of language data is *not* entirely in the sequential ordering of the input. There seems to be a basic difference, however, in the reading process and the sign deletion techniques by which the constraint of context is often measured. An unknown word in reading occurs at a particular sentence locus where a graphic representation is present, and there is usually no uncertainty about the sign. All the letters of the sign are known for example and, for the sophisticated reader, even if the sign is unfamiliar, he probably can group the letters into syllables and give a reasonably accurate pronunciation. Parts of the sign may give cues to possible decoding—the reader may recognize the root for example. On the other hand, if the sign itself is missing, as in a cloze deletion of words, the many cues connected with the perception of a particular word are not present. The subject must search for the most probable sign, usually among a number of signs with somewhat similar probabilities. Reading in this situation is no longer a many-cued, direct, recognition process, but now a more or less uncertain search problem is involved. The reader *may not* need to reduce his uncertainty about short range constraint at all. The decoding need in this process may be that of relating particular language units, e.g. a prepositional phrase as the subject, to the larger topic of the passage. If this be true, central processing in reading may only be difficult when (a) much of the material read is unfamiliar to the subject, i.e. it is not in storage; (b) the material is of such a nature that early parts of the passage are necessary for understanding later parts, i.e. the cognitive load on memory is excessive; (c) the subject lacks "rules" of the grammar (in the "immediate constituents" sense) so that his relating of various smaller language units is inappropriate or inefficient. The "total" impression of these tasks is that successful reading at most particular points in a passage is controlled by the "extensional, field-like" recognition matrix (whatever that means) which has preceded and which immediately follows, that point.

While there is an amount of observable evidence from which to draw inferences that internal control is operating, the specific processes at a molar or molecular level are much more obscure. What is needed is some sort of known variation of internal processes which may be used to index the external dependencies of eye-movements on this internal process. We consider one possible candidate for this standardization of covert processes to be transformational variations of kernals. It has been shown by Miller (19), Jenkins (13) and others, that various transformations of sentence forms called kernals (usually, the declarative, active form of the sentence) into, for example, the passive or the passive-negative, result in an increase in reaction times to the sentence. While there are disputations about the actual ordering of the relative reaction times of the various transformation, gross relationships are the same in most studies, e.g. the passive-negative transformation is always slower than the negative transformation alone. It would seem to be a test of whether eye-movements are controlled by these structural characteristics of the language to present various transformations and predict eye-movements changes connected with the supposedly greater informational load of the transformations.

The consistencies in eye-movement data to the present have been mainly noted in data across subjects. Average number of fixations per word decrease with age; fixations occur in reading languages elaborated left-right, up-down; good readers (by some cognitive criteria) have fewer fixations, i.e. longer spans, than poor readers; all these are examples of the state of our knowledge concerning fixations. There are few examples of what we need to know to understand what fixations are all about within the individual subject.

Actually, we should not expect eye-movements to tell us the whole story of what the person is taking in when he reads. For most reading situations, we feel, he is only taking in cues to "material" which is already present in the organism. Reading, typically, is a selecting of the parts of what we already know. The novelty is in a different arrangement of events from one we have used before and the substitution of material we have always used in one context into a different context. In this aspect it is an easy, enjoyable activity for the accomplished. When material foreign to our learning history is read, the task becomes quite different. More of the information must be gathered from outside the storage of the nervous system. Eye-movements seem to reflect this increase in difficulty.

REFERENCES

1. Auginstine, Leroy G. "Evidences of Periodicities in Human Task Performance," in *Information Theory in Psychology*, Henry Quatter ed., Glencoe, Illinois: The Free Press, 1955.
2. Barlow, J. S. "Evoked Responses in Relation to Visual Perception and Oculomotor Reaction Times in Man," *Annals of the New York Academy of Sciencc*, 1964, 112: 432-467.
3. Bruner, Jerome S. and Donald O'Dowd. "A Note on the Informativeness of Parts of Words," *Language and Speech*, April-June 1958, part 2: 98-101.
4. Buswell, G. T. "An Experimental Study of the Eye-voice Span in Reading," *Supplementary Educational Monographs*, No. 7, 1920.
5. Buswell, Guy Thomas. "Fundamental Reading Habits: A Study of their Development," *Supplementary Educational Monographs*, No. 21, Chicago: Univ. of Chicago Press, 1922.
6. Buswell, G. T. "How Adults Read," *Supplementary Educational Monographs*, No. 45, 1937.
7. David, E. E. Jr. and O. G. Selfridge. "Eyes and Ears for Computers," *Proceedings of the I.R.E.*, 1962, 50: 1093-1101.
8. Dearborn, W. F. "An Experimental Study of the Reading Pauses and Movements of the Eye," *Archieves of Philosophy, Psychology, and Scientific Methods*, No. 4, 1906.
9. Frandsen, A. "An Eye Movement Study of Objective Examination Question," *Genetic Psychology Monographs*, 1934, 16: 79-183.
10. Goldman-Eisler, Frieda. "The Predictability of Words in Context and the Length of Pauses in Speech," *Journal of Communication*, 1961, 11: 95-99.
11. Granit, Ragnar. *Receptors and Sensory Perception*, New Haven: Yale Univ. Press, 1955.
12. Gray, W. S. "Remedial Cases in Reading: Their Diagnosis and Treatment," *Supplementary Educational Monographs*, No. 22, 1922.
13. Jenkins, James J. "Syntactic and Semantic Factors in Generalization," Paper presented at APA meeting, Los Angeles, September, 1964.
14. Judd, C. H. and G. T. Buswell. "Silent Reading: a Study of the Various Types," *Supplementary Educational Monographs*, No. 45, 1937.
15. Lashley, Karl S. "The Problem of Serial Order in Behavior," in *Cerebral Mechanisms in Behavior*, (The Hixon Symposium) ed. L. A. Jeffress, New York: Wiley and Sons, 1951, pp. 121-132.
16. Licklider, J. C. R., Stevens, K. N., and Hayes, J. R. M. *Studies in Speech, Hearing, and Communication*, Technical Report, Acoustics Laboratory, MIT, September 31, 1954.
17. Iuria, Aleksandr Romanovich. *Higher Cortical Functions in Man*, New York: Basic Books, 1966. Trans. from Russian: Basil Haigh.
18. MacGintie, Walter H. "Contextual Constraints in English Prose Paragraphs," *Journal of Psychology*, 1961, 51: 121-130.
19. Miller, George A. "Some Psychological Studies of Grammar," *American Psychologist*, 1962, 17: 748-762.
20. Osgood, Charles E. "A Behavioristic Analysis of Perception and Language as Cognitive Phenomena," in *Contemporary Approaches to Cognition*, Cambridge, Mass: Harvard Univ. Press, 1957, pp. 75-118.

21. Pierce, J. R. and Karlin, J. E. "Reading Rates and the Information Rate of a Human Channel," *The Bell System Technical Journal*, March, 1957.
22. Quastler, Henry *et al. Human Performance in Information Transmission*, Report No. R-62, Control Systems Laboratory, University of Illinois, March, 1955.
23. Stroud, John in *Cybernetics*, H. von Foerster, ed., 6th transactions of the Society, N.Y.: Macy and Co., 1949.
24. Taylor, Stanford E. "Eye-movements in Reading: Facts and Fallacies," *American Educational Research Journal*, November, 1965, 4: 187-202.
25. Tinker, Miles A. "A Photographic Study of Eye-movements in Reading Formulae," *Genetic Psychology Monographs*, 1928, 2: 65-182.

Reading Performance of Elementary Student Teachers in a Developing Institution*

Effie Kaye Adams

The University of Oklahoma

INTRODUCTION

Established in 1881 at Marshall, Texas, as a liberal arts college for Negroes, Bishop College, since 1961, has been located in Dallas. The academic program of the college is designed primarily to prepare students for teaching, for the ministry, and for careers in music, business, social work, health, and recreation. It also offers pre-professional training for dentists, physicians, and lawyers. Although the college faculty of approximately 100 is integrated, the student body of more than 1,300 is almost entirely Negro with but "token" integration. It has been designated by the U.S. Office of Education as a "Developing Institution."

Because more than 75 per cent of the school's graduates enter the teaching profession, the teacher education program is under continuous evaluation by the Texas Education Agency. This agency makes suggestions concerning both the current program and proposed new or expanded programs in Teacher Education.

During the fall of 1965, a team of teachers, administrators, and curriculum experts appointed by the TEA spent one week on the campus of Bishop College reviewing and re-evaluating various facets of the program for teacher education. While discussing the strengths and weaknesses of the training program for elementary teachers, a member of the team suggested that data should be gathered concerning the reading abilities of the preservice teachers, and that improvement services might well be provided for those students who need and desire such a program. It was also suggested that a study of needs for reading improvement might serve as a springboard for a follow-up or continuing program of evaluation and improvement of the teacher preparation curriculum.

STATEMENT OF THE PROBLEM

There have been many claims (17, 12) and counterclaims (7) concerning the preparation and teaching performance of Negro teachers. Sawyer (17:26) says, "The predominantly Negro colleges must close the 'academic gap' and find their places among the nation's other institutions of higher learning." His statement is followed by examples of efforts in this direction and also by several suggestions for improvement.

---

* Data for this paper were collected while the author was Director of Elementary Student Teaching at Bishop College. The analysis of the data was done while the author was serving as a Graduate Assistant in the Reading Laboratory at the University of Oklahoma.

In a study of 123 predominantly Negro colleges, McGrath (12) pointed to the paucity of research activities undertaken by their faculties and to the need for realistic remedial programs, wider use of professional counseling, and major improvements in elementary and secondary education. Keppel (18) reported that the preliminary findings indicate that Negro children in the South experience considerably more difficulty in learning to read than do middle class children of the North. He (10:9) suggests that we "develop an environment of questioning in our education, a climate for investigation, rather than the vindication of existing practices, a habit of searching, rather than languishing in the comfort of the status quo. . . . Let us recognize that in the process of continuous experimentation and reformation lies the only hope of keeping our schools in tune with the needs of our time."

These comments, together with the suggestion by the member of the visiting team from the Texas Education Agency, led to the present study, the purpose of which is to examine the reading needs of students who plan to teach in the elementary schools and to provide remedial instruction for those needing and desiring help. A secondary purpose of this study is to provide a basis for improved cooperation between the department of education and the Reading Improvement Center.

From the findings in this study, attempts will be made to answer the following questions:

1. Do students at this institution who plan to teach at the elementary level show a need for reading improvement?
2. Are Grade Point Averages of these student teachers commensurate with their reading performance?
3. Do these student teachers read at levels commensurate with their intelligence quotients?
4. Can Intelligence Test Scores be used to predict Grade Point Averages?

RELATED LITERATURE

There appears to be a dearth of data specifically concerned with the reading performance of student teachers. Both Davies (6) and Michaelis (13) have indicated that a preponderance of the literature pertaining to student teaching is based on opinions, committee recommendations, surveys, rating forms, and descriptions of practices, and that few critical studies exist. Nevertheless, the few reports included here have some relevance to the problem.

Price (15) observed that good readers are more successful as student teachers than are poor readers. Having supervised and worked closely with more than 100 student teachers during the past few years, the writer believes strongly that this observation is correct. Commenting on the traits of a good teacher, Anger (1) holds that the prospective teacher should have an above average working vocabulary and be able to read rapidly and with good comprehension. He says that prospective teachers at Newark State College, New Jersey, must do well on the Co-op Reading Test, SCAT, Minnesota Paper Form Board, Allport-Vernon-Lindsey Study of Values, Kuder Preference Record, and Guilford-Zimmerman Temperament Survey before being admitted to the Teacher Education program.

Castellano (5) suggests that standardized tests of achievement and intelligence and a composite score on speech, voice, and health should be required as a basis for estimating the potential for excellence of candidates for the teacher preparation program.

At Miami University, 57 prospective elementary school teachers participated in a study to determine if college students enrolled in a Methods of Teaching Language Arts Course tend substantially to improve their own reading skills with no direct training during the course. Forms A and B of the Nelson Denny Reading Test were administered as pre- and post-tests. On Form A, the students tended to score slightly higher than the normative population in rate of reading and comprehension, but slightly lower in vocabulary. In the post test, they scored slightly higher in vocabulary and in rate, but not in comprehension. The null hypothesis was partially disproved (2).

Orlosky (14) at the University of Indiana, studied the reports of 50 of the most experienced supervising teachers to discover the suggestions they had for improving the student teaching program. He found that a high percentage of the supervisors expressed a desire for increased emphasis in activities involving the student teacher in evaluation of the school and of *self*. Experience has shown that unless some formal diagnosis is made by the teacher-training institution, the student is not prone to think of himself as inadequate in any area, more especially if he has been permitted to enter the laboratory experiences.

The psychologists believe that felt needs are basic to an individual's action, and one must actually feel that reading will meet his need before he undertakes to study it (3). They further suggest that motivation will not be very strong unless it is in an area valued by both the individual and his friends as well as the society of which he is a part. Kinney (10:228) poses the question: "Is the student teacher capable of defining and collecting evidence on his own effectiveness, and can he direct his own re-education?"

As evidenced by Groff (9) in his study concerning the "Personality Self-Images of Student Teachers," a high percentage at every age range ranked themselves as possessing positive personality, i.e., capable, conscientious, etc. Their supervisors ranked them as 56.0 per cent cor-

7

rect and stated that the students were not as frank in their responses as they should have been.

Perhaps the most relevant study included here is that reported by Stewart (18) of Texas Southern University in which thirty-two student teachers were tested with the Otis Quick Scoring Tests of Mental Ability and the Nelson Denny Reading Tests in pre-and-post-sittings for reading. The students were able to narrow their total grade equivalent range from 5.0 to 2.6 after participating in a "structured" reading course which met three times a week for a period of eight weeks. (Incidentally, the teacher education program of this predominantly Negro university has been publicly lauded by the Texas Education Agency for its efforts in remedial work in reading and in other basic areas.)

Studies reviewed in this paper should illustrate the importance of elementary student teachers as pre-professionals getting to know the merits of self-evaluation for the purpose of improvement. These studies should also serve to alert teacher education faculties in "developing institutions" and others to the fact that more highly competent teachers are being prepared through the process of diagnostic and improvement programs offered by Reading and Counseling Services on college and university campuses throughout the country.

THE STUDY

Amplification of the Problem

Of the twenty-eight individuals registering for elementary student teaching at the beginning of the spring semester, 1966, four were admitted pending their making a satisfactory score on a second trial of the English Proficiency Test which was to be administered three weeks later. An additional student entered the class at the beginning of the second eight weeks of training, thus bringing the total to twenty-nine.

Each student was provided with a syllabus and special attention was given to testing activities in which members of the class were to engage. Students were appraised of the pressing need for adequately prepared and research-oriented teachers and for teacher education institutions to provide some opportunity for students to engage in as well as carry on systematic research projects as part of their student teaching experiences (6), (10), (12), (17). Ninety percent of the group stated that they had never been administered any standardized reading test and were anxious to see how they would fare. A few questioned taking the test on the grounds of jeopardizing their grade in student teaching. They were assured, however, that scores made on the tests would not count against them.

A reading test, listening test, and mental maturity test were administered. After discussion of the results, the director of the reading laboratory was invited to talk to the class concerning a program for self-improvement and to demonstrate the use of materials and machines available for this purpose. (The college reading program, now in its second year of operation, is well equipped and well-staffed, and is presently functioning under a cooperative agreement with Atlanta University's Reading Center, funded by Title III of the Higher Education Act.)

Enthusiasm ran high during and immediately following the sessions with the reading director; yet, as time went by, no one was reported in the laboratory. When questioned as to what each was doing along the line of self-improvement, the most frequently given deterrents were these: too much class work, job interference, transportation difficulties, and the minor personal problem of being in the group with freshmen "captives."

An investigation of class schedules and work-aid schedules revealed that those needing help most were engaged in a full course load, and, in addition, were either on fifteen-hour work schedules at the college or full-time employed in the city. It was not unusual to find students leaving seminars headed for an eight-hour job, or to other classes, thence to the job. In several instances, student teachers went directly to their teaching assignments from the job, which meant that such rigid schedules hardly left them with sufficient time for class preparation, rest, or recreation. A second testing of this group would seem of little consequence.

Definition of Terms

The following terms in this study carry these designated meanings:

1. *Developing institution.* "Developing institution means a public or nonprofit private institution of higher education which meets the eligibility criteria of the Higher Education Act and has the desire and potential to make a substantial contribution to the nation's higher education resources, but which for financial or other reasons is struggling for survival and is isolated from the main currents of academic life"[1] (19:12), (19:4).
2. *Student Teacher.* A student teacher is one who is acquiring practical teaching experience and skill under the guidance of a cooperating teacher in the classes of a public school, and has had no other teaching experience.

Procedures, Subjects, and Materials

The Nelson Denny Reading Tests, Advanced Form A, the Otis Quick Scoring Tests of Mental Ability, Gamma Form BM, and Grade Point Averages covering four years of college work were of prime consideration in this study. The entire class of twenty-nine elementary student teachers, including six males and twenty-three females, comprise the subjects. Each of the two tests was administered the group at the beginning of the spring semester during a seminar period of one hour, one week apart.

An information form containing family background data was completed by each of the subjects, none of whom had taken previous course work with the examiner.

RESULTS

Presentation and Analysis of Evidence

On examining the results of the tests, grade point averages, and other evidence presented, it can be safely assumed that this group is striking in its heterogeneity in several respects:

1. Table I shows that the actual mean achievement of the subjects on the Total Grade Equivalent of the Nelson Denny Reading Test was below the group's general capacity to achieve as measured by the OQSTMA. The mean I.Q. was 102, Total Grade Equivalent 10.2, and G.P.A.–2.7.

TABLE I

Mean Scores of Three Variables

	6 Males	23 Females	29 Total
1. I.Q. (OQS)	101	102	102
2. Gr. Eq. (NDR)	10.1	10.4	10.2
3. G.P.A. (4 Yrs.)	2.4	2.8	2.7

The one to five ratio of males to females as shown was not unusual because fewer men enter elementary school teaching than women. The mean I.Q. for males was 101, females 102 with Total Grade Equivalents in Reading at 10.1 and 10.4 respectively.

Of the total population, the two subjects with the highest I.Q. scores (113) achieved Total Grade Equivalent Reading scores of 11.3 and 9.9, while the two subjects at the lower end of the scale achieved I.Q.'s of 87 and 89 and achieved TGE's of 8.2 and 10.3, the latter being slightly higher than that achieved by one of the subjects with an I.Q. of 113. This fluctuation of scores made by the same subjects on the three prime variables and the fluctuation of scores of those subsequently mentioned are more generally typical of the entire class than not. For example, the four subjects with an I.Q. of 106 each achieved Total Grade Equivalents of 13.0, 8.4, 9.3, and 9.8 respectively. The three subjects with an I.Q. of 97 each scored 11.6, 7.6, and 13.2 on TGE's.

Although this study was primarily concerned with the Total Reading Grade Equivalents, the reader might be interested in knowing that the mean achievement in Vocabulary was 11.2, in Comprehension 9.0, and Rate 7.1.

2. Scores of nine, or one-third of the subjects (all females) with Grade Point Averages of 3.0 to 3.8 on a four-point scale are shown in Table II. A wide variation of scores can be easily seen for this group

on inspection. Five of the subjects in this group of 9 showed TGE's above the class mean of 10.2. Three of these scored above the class mean I.Q. of 102 and two were below. Note that subject No. 1 with the highest G.P.A. ranked third in this sub-group on TGE, fifth in the total group, seventh in the sub-group in I.Q. score, and nineteenth in the total group.

Perhaps the most unusual contrast in scores is seen in the final example shown here of the subject with an I.Q. of 96, a G.P.A. equivalent to two of the subjects with I.Q.'s above the mean, and a total reading score of 7.4 which ranks her twenty-sixth in a class of 29.

TABLE II

3.0-3.8 Grade Point Average Group with Two Variables

Subjects	G.P.A.	NDR (TGEq.)	I.Q.
1.	3.8	13.2	98
2.	3.3	13.6	101
3.	3.3	11.3	113
4.	3.3	8.2	87
5.	3.2	13.8	111
6.	3.1	9.2	108
7.	3.0	11.9	104
8.	3.0	9.8	106
9.	3.0	7.4	96
x.		10.3	

3. There were twenty subjects in the 2.0-2.9 G.P.A. category. Of this group total grade equivalents for reading ranged from 7.2 to 14.+. The two subjects achieving the highest reading scores (14+), had G.P.A.'s of 2.5 and 2.9, and I.Q. scores of 109 and 100 respectively. Of the two groups (2.0-2.9 and 3.0 to 3.8), reading scores above the mean were earned by eight subjects in the former, by five in the latter. Mean scores for this sub-group were 10.3–Reading TGE, 2.5–G.P.A., and 102–I.Q.

Teacher education faculties in developing institutions and others might be interested in possible causative factors related to the reading performance of elementary student teachers as seen in this study. In view of the fact that time and space will not permit a detailed analysis of the background data submitted by the subjects, it is hoped that the following information will prove adequate.

Gordon (8) has suggested that high school grades, honor societies, and size of the school have high motivational and prestige value for the student, while Roe (15) and others have claimed that educational performance still reflects (among other things) the parents' education, and their occupation, the latter being the most widely used measure of socio-economic status. Although research workers have been cautioned on this assertion, (4) low achievement of Negroes on certain standardized tests has been frequently attributed to low socio-economic status. Other factors worthy of consideration include the lack of motivation, negative self-concept, and inadequate effort—more especially in instances of relatively high potential for achieving. In Table III the reader will note that of the eleven students who received honors upon graduation from high school, seven were above the mean TGE for the class and included the two highest total reading grade equivalent scores, though there was much variation in G.P.A. and I.Q. scores among these seven. Eight of the fathers of these subjects were laborers, two professionals, and one engaged in trade. Seven had completed elementary school; two high school, and two college.

In addition, seven of these honor students upon high school graduation were members of classes fewer than fifty, one in a class of 100, and three in classes from 101-500. Data for the entire class revealed that among the fathers, eighteen or 62.06% were laborers, six or 20.70% professional; three, or 10.34% government workers, and two, or 6.90% in trade. Among the mothers, eighteen or 62.06% were housewives, six or 20.70% domestic workers, two or 6.90% food handlers, two professionals, and one was engaged in health services.

TABLE III

Seven Variables for Subjects Receiving Honors At High School Graduation

	Class Size	TGr. Eq. NDR	G.P.A.	Otis I.Q.	C. A.	Educ. Parent	Occup. Parent
1.	A	14.+	2.9	100	23– 2	Grade Sch.	Laborer
2.	A	14.+	2.5	109	22– 8	College	Teacher
3.	A	13.2	2.3	97	25– 1	College	Teacher
4.	A	11.9	3.0	104	24– 1	Grade Sch.	Laborer
5.	A	9.2	3.1	108	21– 9	Grade Sch.	Laborer
6.	A	9.1	2.8	111	21– 5	Grade Sch.	Laborer
7.	A	7.4	3.0	96	35–10	High Sch.	Laborer
8.	B	11.3	3.3	113	36– 4	Grade Sch.	Laborer
9.	C	13.6	3.3	101	21– 3	High Sch.	Laborer
10.	C	10.3	2.7	89	22– 5	Grade Sch.	Laborer
11.	C	9.9	2.9	113	26– 8	Grade Sch.	Trade
X		11.6	2.9	104			

A/N – 13 (1 – 50)

B/N – 2 (51 – 100)

C/N – 14 (101 – 500)

Of the six subjects for the entire class whose parents were professionals, three scored considerably higher than the class mean in TGE, three scored above the class mean G.P.A., and five showed I.Q.'s above the mean. Ages ranged from 20 to 25 years.

One of the three whose parents were government workers scored slightly above the mean in TGE; another scored an I.Q. slightly above the mean; and all three showed low G.P.A.'s. Perhaps this small group exhibited more homogeneity of scores and ages than any of the others. Ages were 21, 23, 23.

Of the two whose parents were engaged in trades, one scored more consistently on the three prime variables than any of the other subjects: TGE–13.8, G.P.A.–3.2, and I.Q.–111; the other, with the highest I.Q. of the class (113) scored a 9.9 TGE and 2.9 G.P.A. These two were 21 and 26 years of age.

Approximately one third of the subjects were in the 30-40 age range, and two-thirds less than 25. The oldest subject scored a Reading TGE of 13.2, attained the highest G.P.A. (3.8), and an I.Q. of 98, while the youngest scored a TGE of 9.3, attained a G.P.A. of 2.8 and an I.Q. of 106.

Though higher Grade Point Averages were earned by the older subjects, the younger subjects on the whole attained higher total reading scores. The I.Q. range was approximately the same for both groups.

SUMMARY

Mean Scores for Sub-Groups and Total

	Voc.	Comp.	Rate	TGr. Eq. V -/- C	G.P.A.	I.Q.	C.A.
1. Honors H.S. Grad)	12.4	9.8	8.2	11.6	2.9	104	28-6
2. G.P.A. 3.0-3.8)	11.8	9.7	8.8	10.9	3.2	103	29-7
3. G.P.A. 2.0-2.9	11.5	9.0	7.3	10.3	2.5	102	23-8
4. Par. Occ. Prof.)	12.0	9.7	8.3	11.0	2.6	104	22.8
5. Total	11.2	9.0	7.1	10.2	2.7	102	26-3
	Correlations:		r - Rdg/GPA		- .05		
			r - Rdg/IQ		- .05		
			r - GPA/IQ		- .10		

Educational Status of Parents

	Mother		Father	
Gr. Schl.	N/8	27.59%	N/12	41.38%
H. Schl.	N/15	51.72%	N/10	34.51%
College	N/6	20.70%	N/7	24.11%

Occupation of Parents

Mother			Father		
Housewife	N/18	62.06%	Laborer	N/18	62.06%
Domestic	N/6	20.70%	Prof.	N/6	20.70%
Food Serv.	N/2	6.90%	Govt. Serv.	N/3	10.34%
Health Serv.	N/1	3.44%	Trade	N/2	6.90%
Prof.	N/2				

SUMMARY AND CONCLUSIONS

The results of this study are summarized in the following statements and include answers to questions set forth in the statement of the problem:

1. The range of Grade Equivalents Scores on the Nelson Denny Reading Tests was 6.8 years.

2. At the 5 percent level of significance, it was found that the mean Total Grade Equivalent on the Nelson Denny Reading Test for the sample group tested was sufficiently below that of the normative population to justify the elementary-student teachers' need for reading improvement.

3. The correlation coefficient between the scores on the Nelson Denny Reading Test and the Otis Quick Scoring Tests of Mental Ability was .05 and not significant enough to state that these student teachers read at levels commensurate with their Intelligence Quotients.

4. The correlation coefficient between the scores on the Nelson Denny Reading Test and four-year Grade Point Averages was .05 and not significant enough to assert that Grade Point Averages of these student teachers were commensurate with their reading performance.

5. The correlation coefficient between the I.Q. scores on the Otis Quick Scoring Test of Mental Ability and four-year Grade Point Averages was .10 and not significant enough to state that the Intelligence Quotient scores can be used as predictors of Grade Point Averages of these subjects.

6. Subjects receiving honors on graduation from high school reflected a larger number with reading scores above the class mean than did those in other sub-groups examined.

7. Such variables as age, size of high school graduating class, and education and occupation of parents did not seem to influence the reading scores of the subjects in this study.

8. Differences between means of the sub-groups were not statistically tested due to the fact that there was considerable overlapping or repetition among the constituents.

Since the study was small and not controlled, the results can only be speculative. Nevertheless, they reflect the need for additional study in the area. In an attempt to seek more definite answers to questions relative to the reading performance of student teachers, plans are underway to replicate the study with approximately 200 subjects, equating them, as far as possible, as to age and intelligence.

It is hoped that results from this and the larger study will provide a challenge for teacher education faculties in "Developing Institutions" and others to seek counsel and help for their internes through reading improvement centers available to them.

REFERENCES

1. Anger, William P. "The Psychology of the Teacher," *Improving College and University Teaching*, 1963, 11: 115-117.
2. Barter, Alice and George Slinger. "Reading Improvement and the Prospective Teacher," *Peabody Journal of Education*, 1965, 42: 292-299.
3. Berg, Paul Conrad. "Motivation and Specific Materials of Instruction," in *Starting and Improving College Reading Programs*, Eighth Yearbook, National Reading Conference, Fort Worth: Texas Christian University, 1959, pp. 113-117.
4. Carter, Launor and Joseph Margolin. "Psychology in the States," *American Psychologist*, 1964, 19: 69-70.
5. Cartellano, Joseph A. "How Good Must Teachers Be?" *Journal of Teacher Education*, 1961, 12: 66-68.
6. Davies, Don. "Research and Student Teaching," *Teachers College Journal*, 1961, 33: 14-22.
7. Edmonds, William S. "Oh, That Median Score: The Bane of Negro Pupils!" *Journal of Negro Education*, 31: 75-79.
8. Gordon, C. Wayne. *The Social System of the High School*. Glencoe, Illinois: The Free Press, 1957.
9. Groff, Patrick. "The Personality Self-Images of Student Teachers," *Journal of Teacher Education*, 1961, 12: 433-436.
10. Keppel, Francis. "Research: Education's Neglected Hope," *Journal of Developmental Reading*, 1964, 8: 3-9.
11. Kinney, Lucien B. "Self-Evaluation: The Mark of a Profession," *Educational Leadership*. Journal of the Association for Supervision and Curriculum Development. Washington: National Education Association, 1958, 15: 228-230.
12. McGarth, Earl J. *Predominantly Negro Colleges and Universities In Transition*. New York: Bureau of Publications Teachers College, Columbia University, 1965.
13. Michaelis, John U. "Teacher Education-Student Teaching and Internship," *Encyclopedia of Educational Research*, Third Edition. New York: The Macmillan Company, 1960, pp. 1473ff.
14. Orlosky, Donald Eugene. "Performance, Relative Importance, and Factors Which Prevent Performance of Certain Activities in Student Teaching," Dissertation Abstracts. 29: 3211, No. 28 L. C. No. Mic. 59-6584.
15. Price, Uberto. "Developmental Reading for College Freshmen," *Journal of Developmental Reading*, 1966, 9: 333-334.
16. Roe, A. *The Psychology of Occupations*. New York: Wiley and Sons, 1956, pp. 143-52.
17. Sawyer, Granville M. "Negro Colleges for the Great Society," *College and University Journal*, 1966, 5: 36.
18. Stewart, Elneita A. "A Structured Reading Program." Unpublished paper submitted to Dr. Evelyn Thompson (Department of Elementary Education) The University of Houston, Summer, 1966.
19. United States Department of Health, Education, and Welfare. *The Higher Education Act*, 1965, p. 12. Washington: Superintendent of Documents, U.S. Government Printing Office, November, 1965.

The Effect of High-Interest Materials on Reading Achievement in the First Grade

Jo M. Stanchfield

Occidental College, Los Angeles, California

Basic to many of the newer approaches in teaching reading is the assumption that success in beginning reading is crucial, and that the reading programs in the primary grades must be organized to assure it. Evidence of the importance of achievement in initial reading instruction is the large number of research studies designed to find more effective ways of teaching beginning reading.

BACKGROUND OF THE RESEARCH

Over the past five years the writer has been engaged each year in research with approximately 400 first-grade children in the Los Angeles City schools. The purpose of the research has been to experiment with a variety of materials and methods in teaching beginning reading to determine the effect upon the reading achievement of first-grade children. Based on the results of this experimentation, the writer has worked with teachers and administrators to develop new materials to capture the interest of both boys and girls, to teach reading skills sequentially from the easy to the difficult, to provide for levels of difficulty, and to reinforce reading skills.

PROCEDURES IN THE RESEARCH

During the school year 1965-1966, ten Los Angeles City elementary schools used the experimental materials to teach reading to the children in the first grade. These schools covered a broad range of socio-economic levels from middle-class to lower-class populations, with approximately equal numbers of Caucasian, Negro, and Mexican-American children. The experimental groups were matched with control groups typical in intelligence, home backgrounds, and ethnic origins.

The research design was based on a divided-day structure for teaching reading, in which one-half of the children were given reading instruction between 9:00 and 10:00 in the morning and the other half between 2:00 and 3:00 in the afternoon. The *Harsch and Soberg Survey Test of Primary Reading Development* was given in June to secure reading achievement scores for both the experimental and control groups.

MATERIALS IN THE RESEARCH

The materials listed below were developed under a Rosenberg Grant to the writer, at Occidental College:

Reading Readiness Materials. Each teacher in the experimental groups used a comprehensive reading readiness manual which contained specific, concrete suggestions in lesson-plan form to develop speech sounds and listening skills in a structured program of prereading activities.

Reading Textbooks and Manuals. The readers used in the experimental groups contained original, imaginative, exciting stories about Hawaii, our fiftieth state, and Alaska, our forty-ninth state. The books include the following: *Kam in Hawaii*, preprimer; *Kam and Bud in Hawaii*, preprimer; *Fun in Hawaii*, preprimer; *Adventures in Hawaii*, primer; *Adventures in Alaska*, first-grade reader. Since the readers contained factual material, there were concommitant learnings possible for the children in such areas as science, geography, and social studies.

A manual was provided for each of the reading books. This manual contained a detailed lesson plan for each story in the books, with two follow-up practice sheets for each lesson, to be done independently by the children. One follow-up sheet emphasized the comprehension skill taught in the lesson; the other, the vocabulary skill.

Listening Tapes. A set of 72 tapes, covering the content of each story in the three preprimers and the primer, were given to the experimental teachers. These tapes, used by children at listening centers, provided opportunity for rereading the story previously taught in the directed reading lesson. Each tape had follow-up practice material to be completed by the children listening to the tape, and to be corrected as the last part of the tape activity. The tapes provided additional drill and reinforcement for children who needed this help.

RESULTS OF THE RESEARCH

The *Harsch and Soberg Survey Test of Primary Reading Development* was given to the control and experimental groups in June, 1966. With the data from this test a three-way analysis of co-variance was performed with sex, experimental-control, and ethnic group as the main effects.

Table I A, B, and C gives means and standard deviations separated with respect to sex, experimental-control, and ethnic background. *Table I A* shows that the girls scored higher than the boys in each of three ethnic groups in the research, as well as in the total. *Table I B* shows that the Negro and Caucasian groups scored higher than the Mexican-American group, and that the experimental portion of each ethnic group scored higher than the control portion of the same ethnic group. *Table I C* shows that girls in both experimental and in control groups scored higher than boys but that boys in the experimental group scored higher than either boys or girls of the control group.

In Table I B and C it can be noted that the mean for the total experimental group is almost 49, while the mean for the total control

TABLE I

Adjusted Means and Standard Deviations for Reading Total

A	Caucasian	Mexican	Negro	Total
Boy	46.04	41.84	45.54	45.01
	11.43	7.72	12.69	11.67
Girl	47.50	43.26	48.97	47.34
	10.64	8.45	11.81	11.11
Total	46.77	42.45	47.23	46.13
	11.09	8.09	12.41	11.53

B	Caucasian	Mexican	Negro	Total
Experimental	49.74	43.95	50.34	48.89
	11.92	5.23	12.99	12.00
Control	43.75	40.95	44.12	43.37
	9.44	10.18	11.04	10.44
Total	46.77	42.45	47.23	46.13
	11.09	8.09	11.81	11.53

C	Boy	Girl		Total
Experimental	47.31	50.67		48.89
	12.58	10.99		12.00
Control	42.56	44.18		43.37
	10.02	10.59		10.44
Total	45.01	47.34		
	11.67	11.11		

group is slightly over 43. In every case—whether compared by ethnic grouping or by sex—the experimental group achieved more in reading than the control.

In analyzing *Table I A, B, and C,* it must be remembered that these means are not the actual or achieved means for each group, but rather have been changed to reflect differences in the average I.Q. scores for each group. For instance, the Negro group has an adjusted mean of 47.23, which is higher than that of either the Mexican group, with a mean of 42.45, or the Caucasian group with a mean of 46.77. This order of achievement in the adjusted scores was not the same order as in the raw scores before the adjustment.

Further, a most interesting finding in *Table I* is the extremely small variation achieved by almost all of the Mexican-American groups, as indicated by the low standard deviation. This suggests that the Mexican-American children were much more homogeneous with respect to reading than either of the other two groups. It would seem that these children had similar kinds of problems in reading related to the sameness of their verbal behavior, that is, difficulties in auditory discrimination of English words with resulting problems in transfer and generalization in phonetic analysis.

TABLE II
Analysis of Co-variance

	Adjusted Sums of the Squares	df	Adjusted Mean Square	F
Sex	402.34	1	402.34	5.86
Experimental Control	2099.57	1	2099.57	30.57
Ethnic	1110.88	2	555.44	8.09
Sex x EC	29.34	1	29.34	.43
Sex x Ethnic	75.55	2	37.78	.55
Ec x Ethnic	152.01	2	76.00	1.11
Sex x Ec x Ethnic	70.95	2	35.48	.52
Error	25,138.84	366	68.69	

Table II gives the analysis of co-variance with sex, experimental-control, and ethnic group as the main effects. This Table represents the analysis of co-variance, with I.Q. being the covarient. In this analysis a test was made to see if the means shown in Table I were significantly different. It was found that all three main effects show significant differences:

1. The girls read significantly better than the boys in the study.
2. The Mexican-American children read significantly worse than the Caucasian or Negro.
3. And, most important, the experimental groups read significantly better than the control.

Table II also shows that combinations of the various possible groupings of the three main effects do not produce significant additional differences. That is, none of the interactions are significant.

In summary, it may be said that the children in the first grade who were using the new, high-interest materials achieved significantly more in reading than those who were using the regular state texts.

Simulation in Reading

Jordan Utsey

University of Oregon

INTRODUCTION

One of the more difficult and frustrating tasks in education is the accurate evaluation of reading instruction. The assessment of teaching effectiveness and programs of instruction is made difficult, among other reasons, because there are frequently large numbers of variables in the instructional setting which do not readily yield to controlled analysis. Reading specialists are only too familiar with studies in reading in which significant variables could not be controlled, thus rendering the findings less conclusive than had been anticipated by the researcher. Comparison studies, in which the efficiency or reliability of one set of materials or procedures is compared to another, have been particularly difficult to manage satisfactorily. During the last fifteen or twenty years considerable time and much effort have been expanded conducting comparative type research, and often it has been an experience in futility indeed.

In contrast to the foregoing, what we in Oregon have been attempting to do during the past three years is to improve the validity, reliability, and efficiency of all reading instruction by modifying certain dimensions of teacher behavior. We believe that by improving the classroom teacher's proficiency in certain crucial instructional skills, we can have a greater impact upon the teaching of reading than is possible in any other way.

Our primary endeavor was focused upon helping teachers achieve an acceptable degree of competency in solving the first instructional problem they face in the teaching of reading, i.e., the determination of each child's functional reading levels and the selection of reading materials at an appropriate instructional level. Teachers may utilize either basal readers or trade books; but they must, if optimum growth is to be achieved, carefully match each child's reading proficiency with books at his instructional level.

The foregoing instructional problem faced by teachers gives rise to at least two questions: (1) What means have teachers typically employed to make an assessment of children's functional reading levels? and, (2) Are the means employed satisfactory for the purpose?

In answer to the first question, it was learned by means of a brief survey of elementary teachers in Oregon, Washington, and Idaho that teachers typically utilize data from three sources in assessing a child's reading behavior for the purpose of determining his reading level. One, 74 per cent of the teachers used the grade equivalent scores in reading obtained from achievement tests administered either the previous spring or the current school year. Two, 24 per cent relied upon statements in the cumulative folder placed there by the teacher of the previous year; and, three, 17 per cent utilized rather unsystematic observations of each child's reading performance. Only 30 per cent of the teachers used a combination of the foregoing. Interestingly enough, only first grade teachers stressed their own observations as a primary method of collecting data about the children. Perhaps this occurs because they have nowhere else to turn.

All three of the foregoing procedures for determining functional reading levels appear to have some serious flaws either in rationale or commission. First, we tend to believe that the findings of Killgallon (3), McCracken (4), Sipay (6), and others are accurate—that group standardized tests such as the Stanford Achievement or the California Achievement, to mention only two widely used examinations, overestimate a child's instructional reading level by one or more years. There is little question in our minds that, if standardized test scores are used as a basis for selecting a child's reading text, the pupil will be receiving instruction from reading materials which are too difficult for him.

Second, anecdotal records of a child's reading behavior placed in the cumulative record folder by the pupil's previous teacher may be questioned, as they are often badly outdated even when entered. Furthermore, there is serious doubt about the objectivity and accuracy of such records in many instances.

Third, there is evidence that many teachers do not have in mind a set of objective criteria for determining reading levels, nor have they been overwhelmingly accurate in the use of informal assessment procedures.

In 1962 Millsap (5) conducted a study to determine if teachers were aware of the frustration reading level among their pupils. Her population consisted of 123 teachers, Grades One through Six, 27 seventh- and eighth-grade teachers, 23 secondary teachers, 47 preservice teachers, and other miscellaneous subjects.

Millsap administered two inventories to each member of her population. The first consisted of seven selections taken from a series of basal readers, primer through sixth grade. Errors the pupil had made in reading each selection were marked in the text. The subjects were asked to indicate their reaction to the appropriateness of the material for the child in question at each grade level by indicating whether they thought the material was too easy, about right, or too difficult. Inventory Two also consisted of seven selections taken from a basal reading series, but no errors were marked in the text and material. Instead, the errors occurred on a tape accompanying the text. Again, subjects were asked to react to the suitability of the material for the pupil in question at each grade level.

The 123 elementary school teachers were 70 per cent correct in their responses, the seventh- and eighth-grade teachers were 51 per cent correct, the secondary teachers were 43 per cent correct, and the preservice teachers were only 42 per cent correct.

The foregoing studies provided ample evidence that the means utilized by large numbers of teachers to assess each child's functional reading levels were either inappropriate or that their skill in the use of appropriate informal inventories was quite poor.

The findings by Killgallon (3) and others clearly demonstrate that group standardized tests tend to overestimate a child's instructional reading level. This circumstance tends to be true not only of group achievement tests, but of group reading readiness tests as well. Gates (2:4) has recently made the point that these tests are superficial and inadequate.

Conversely, the validity of the informal reading inventory for identifying functional differences in children's reading abilities has been known for some time and in 1966 was reinforced again by Christenson (1). He found that certain types of errors were associated with different reading levels. For example, noun errors occur with a greater than expected frequency at the frustration level, whereas pronoun and conjunction errors occur more frequently than expected at the independent level.

THE INFORMAL READING INVENTORY INSTRUCTIONAL PROCESS

As instructors of methods courses in reading and supervisors of student teachers, my colleagues and I had been aware for some time of the seeming inability of teachers to determine accurately children's functional reading levels. We felt that the most promising approach, since we could not change the standardized tests, was simply to improve prospective teachers' ability to use the informal reading inventory.

We were not, however, noticeably successful in our initial attempts to teach the use of the informal reading inventory. We provided our students with a marking code and a set of criteria for evaluating children's reading behavior, we demonstrated the techniques, and we compelled our students to administer inventories to children in the schools. But our students did not learn to use the marking code well, as they had only limited opportunities to practice; the children we utilized in demonstrating the informal inventory did not function normally and presented atypical performances; and when we had our students administer informal reading inventories to children in the classrooms in which they were student teaching, we lacked control. The students administered the informal reading inventories, evaluated the children's performance, and selected instructional texts; but we had no way of assessing the accuracy of the students' use of the inventory, as it was not possible to be present when all the inventories were administered.

We gradually became aware that a fresh approach would be necessary if we were to teach the effective use of the informal reading inventory to the large numbers of students typical of undergraduate reading methods classes. The problem was to develop realistic materials which would provide students the opportunity to:

1. Learn a marking code and the criteria of three functional reading levels: independent, instructional, and frustration.
2. Practice using the marking code and applying the criteria.
3. Evaluate their own skill in administering the informal reading inventory.

Furthermore, the materials and learning process should be subject to the control of the instructor in order that he would be able to judge the students' progress in learning to administer the informal reading inventory.

The search for a technique which would meet the foregoing demands led to the development of a series of instructional films and printed materials described as the *Informal Reading Inventory Instructional Process.* The printed materials and films were programmed in such a manner that students learned the essential elements of administering an informal reading inventory in a simulated teacher-pupil conference.

Briefly, the process a student experiences in three separate class periods is as follows:

> 1. During the first hour of instruction the students are provided with a manual prepared for their use. At this time the college instructor discusses with the class the background and rationale of the informal reading inventory, how it is administered, the criteria for determining functional reading levels, and the marking code. Students are instructed to study their manuals, learn the marking code, and familiarize themselves with the criteria used to determine reading levels. The student's manual also contains several reading selections, grades two through six, followed by a number of questions designed to check a child's vocabulary and literal comprehension of each selection. The students are instructed to read these selections and the questions which accompany them and to determine a satisfactory answer for each question.
>
> The students are also asked to practice using the marking code by listening to three five-minute tapes of children reading materials at different levels. Answer keys are available so that students may check the accuracy of their responses.
>
> 2. During the second hour of instruction the students are shown a thirty-minute film of a child reading five different reading selections of increasing difficulty. The students' manuals contain exact duplicates of the selections read by the child in the film. As the students view the film, they use the marking code to record the child's reading errors—omissions, insertions, mispronunciations, and substitutions. The students also record the number of incorrect answers the child on the film makes in response to the comprehension questions asked by the teacher on the film.
>
> The film was done in such a manner that the viewer gains the impression that he is sitting in the teacher's chair, across the corner of a desk from the child. The teacher in the film is seen only at the beginning and ending of the sequence, and it is his voice that asks the comprehension questions. Every effort is made to place the viewer in the teacher's place to heighten the impression that the viewer is *in fact* administering an informal reading inventory to the child.

> 3. Following the viewing of the film, the students are asked to compute the percentage of correct word recognition responses and the percentage of correct comprehension answers to each selection read. They then determine the child's functional reading level for each of the selections read.
>
> 4. During the third class period the college instructor discusses each filmed reading selection with the students, the errors the child made, and the correct evaluation of the child's reading performance. The student thus receives almost immediate reinforcement for his responses.
>
> Also during the third hour the students view the film again. They are instructed to try to correct any errors made during the first viewing. They are also instructed to pay particular attention to important behavior they might have ignored previously—the child's phrasing errors, signs of tension, etc.
>
> 5. The students are asked to identify an appropriate basal reading text for the child. Again the college instructor discusses with the students their responses and corrects any errors. (7:573-574)

The foregoing process which simulates the administration of an informal reading inventory has been in use on several campuses for the past eighteen months. Over 500 undergraduate students have learned to administer the informal reading inventory through simulation. In addition, over 600 experienced teachers have been taught to use the informal reading inventory through in-service programs.

In 1965 a study of 100 undergraduate students was undertaken to determine the efficiency of the simulation package. The students were taught to administer the informal reading inventory through the use of simulation only. It was learned that they were able to identify correctly the independent, instructional, and frustration reading levels of children on a simulation test film with 92 per cent accuracy. The manuals and films were subsequently modified, and a second study of fifty undergraduate students was undertaken during the spring and summer of 1966. These students were 94 per cent accurate in their ability to identify correctly a child's functional reading level.

In still another study of fifty experienced teachers who were taught the use of the informal reading inventory through simulation, it was found that they were 96 per cent accurate in their ability to identify correctly a child's functional reading level.

The transfer of learning from the simulated class into actual classroom practice was evaluated in October of 1966. During the summer of 1966 fifty experienced teachers were taught to administer the informal reading inventory using the simulation instructional process. Of these, nine had previous knowledge of the informal reading inventory and had used it in their classrooms. However, after learning to use the informal reading inventory during the summer, forty-two were utilizing it in their classes in August and September. Only eight first grade teachers had not had an opportunity to use the inventory in class; but, of these, four had helped other teachers assess the reading levels of the children in their classrooms. Further, of the fifty teachers, ten had presented the informal reading inventory to the other teachers in their buildings or had helped other teachers examine their classes.

Thus, with experienced teachers, there appears to be from 84 to 92 per cent transfer into the classroom.

The transfer into classroom practice by inexperienced teachers, although not as high as with experienced teachers, is encouraging. A follow-up study of fifty students during their first year of teaching indicates that 67 per cent used the inventory. This compares with the 17 per cent found in the survey of Oregon, Washington, and Idaho teachers quoted earlier.

Our experience with simulation has reinforced our belief that one of the most crucial problems faced by all teachers is that of establishing in student's minds clear understandings of the dimensions of the process being taught. If students and instructors have in mind referents which are identical, or nearly so, and these referents are identically labeled by students and the instructor, effective instruction may take place. If, on the other hand, students have no referents, or if the students' referents are greatly different from the instructor's, many words may be exchanged but understanding is clouded or lost.

As Professor Wallen has stated:

> Instructional simulation is a powerful tool for developing the referential resources of reading teachers. By showing student teachers examples of the specific behaviors of children which characterize different reading levels and different word attack skills in a setting which exaggerates these characteristics and makes them more obvious, student teachers can develop referential categories for the different behaviors. The student teacher learns what the term 'instructional reading level' means by observing a child reading materials at different levels of difficulty and applying a transcription code to record the errors. The label, instructional level, refers to that behavior exhibited by the child on film at a specified time. Once he has learned to identify the instructional reading level of each child, the teacher can then answer the question: 'Is the text too hard for Johnny?' (8:4)

REFERENCES

1. Christenson, A. Adolph, *A Diagnostic Study of Oral Reading Errors of Intermediate Grade Children at Their Independent, Instructional, and Frustration Reading Levels*, Unpublished D.Ed. dissertation, Colorado State College, 1966.
2. Gates, Arthur I., "What We Should Be Doing Soon." In *Invitational Addresses 1965*. Newark, Delaware: International Reading Association, 1965, pp. 3-17.
3. Killgallon, P. A., *A Study of Relationships Among Certain Pupil Adjustments in Reading Situations*, Unpublished Ph.D. dissertation, Pennsylvania State University, 1942.
4. McCracken, Robert A., "Standardized Reading Tests and Informal Reading Inventories," *Education*, 1962, 82: 366-369.
5. Millsap, Lucille N., *A Study of Teachers' Awareness of Frustration Reading Level Among Their Pupils in Basal Readers*, Unpublished D.Ed. dissertation, University of Oregon, 1962.
6. Sipay, Edward R., "A Comparison of Standardized Reading Scores and Functional Reading Levels," *The Reading Teacher*, 1965, 17: 265-268.
7. Utsey, Jordan, Carl Wallen, and H. O. Beldin, "Simulation: A Breakthrough in the Education of Reading Teachers," *Phi Delta Kappan*, 1966, 47: 572-574.
8. Wallen, Carl J., "Developing Referential Categories with Instructional Simulation," Paper delivered February 18, 1966, at the AERA Annual Meeting in Chicago, Illinois, as part of a symposium entitled "Laboratory Simulation: New Developments in Instruction and Research."

Some Factors to Be Considered in Conducting a College-Adult Reading Program

Homer L. J. Carter and Dorothy J. McGinnis
Western Michigan University

The college-adult reading program at Western Michigan University was initiated in 1944. Since that time several thousand college students and adults have been involved in its activities. These people have ranged in reading ability from the third to the 99th percentile as evaluated in terms of college-adult norms. Participants have been freshmen, sophomores, juniors, seniors, graduate students, university faculty members, and adults in the community. They have ranged in age from 16 to 65 years.

During this time aims, materials, and procedures utilized in the program have changed. In the beginning the approach was primarily clinical in nature. Classes were limited to twelve students, and many types of practice exercises designed to accomplish specific objectives were used. Later, the clinical approach was replaced by a thoroughgoing developmental program. Classes of 36 and 40 students are now common. Class procedures consist of lectures, demonstrations, and laboratory work. Individual conferences with students are encouraged. Students are shown how to apply reading procedures directly to their academic work and are taught how to read their college textbooks (3). Skill-drill materials have been reduced to a minimum.

Gradually during these twenty-two years of experience, several principles have evolved which we believe are essential to successful instruction in reading at the college-adult level. We believe that these principles may be helpful to others who are planning to establish new college-adult reading programs. Furthermore, in our opinion, these principles can be useful in the evaluation of programs already in existence.

PRINCIPLE 1: *The teacher must stimulate, inform, and guide.* The teacher of reading at the college-adult level has three specific functions. It is his responsibility to stimulate, to inform, and to guide. In this sequence the emphasis should be placed upon stimulation and guidance rather than upon the process of providing information about reading which the student may feel is quite unrelated to his work in the university. In general, students do not hunger and thirst for information concerning how to read until they understand that reading skill is directly related to their success in college. They need to be shown how increased facility in the use of their textbooks can bring both an economy of time and effort and how the development of skills in using their textbooks can result in increased scholarship as indicated by grades earned in their college classes. The whole process is goal-oriented, and progress toward the student's objectives is facilitated by stimulation, information, and guidance provided by the instructor.

PRINCIPLE 2: *Every student should know how well he reads and should select for himself the specific reading skills he needs to acquire.* Tests having educational significance to the student can be administered at the second meeting of the class. This evaluation provides both student and teacher with information concerning the student's reading level and furnishes a point of reference for determining change taking place between the time of initial and final testing. The student should be concerned not only with the quantitative but with the qualitative factors as well. In other words, he should know not only his reading level but what skills he possesses and what skills he does not possess. A study by McGinnis (7) in 1961 indicated that 30 percent of over 1,000 college freshmen said that in their opinion they were not reading well enough to do satisfactory academic work. They pointed out that they did not know how to read a chapter effectively, how to increase their vocabularies, nor how to improve their spelling. Furthermore, they added that they did not know how to evaluate a writer's bias and preconceived ideas nor how to adjust their rate of reading to the nature and difficulty of the material being read. An informal reading inventory which has been developed by our staff can help the student identify some of the skills he may need to acquire. Does he need to increase rate? Does he need to enlarge his vocabulary? Does he need to learn how to read various forms of literature? Does he need to learn how to do directed reading? These are but some of the qualitative aspects which he should consider. As Logan (5) has pointed out, "Real learning occurs when each individual becomes his own center, focus, and occasion for learning." It is assumed that goals set up by the student will have more meaning to him than those imposed upon him by the instructor.

PRINCIPLE 3: *The student should understand that he can improve his reading ability and that the responsibility for doing so rests with him.* Many of the students who enroll in college-adult reading programs feel inadequately prepared to cope with the reading assignments required by their professors. Some of them have experienced academic failure and lack confidence in their ability. They need to improve their self concept and to modify their attitudes toward themselves. Attitudes can be changed so that the student recognizes that he is the master of his own choices. The teacher can provide students with evidence that others have increased their reading skills and can indoctrinate them with the belief that what others have done, they can do. They need tangible proof that they can improve and that they are improving. Instructors can show by their actions and words that they have confidence in the effectiveness of the materials they are

7

presenting and that they are aware of the effort the students are putting forth to become better readers. Praise and commendation are essential.

At the same time the student should realize that the responsibility for improvement is his. No one can give him a magic potion which will improve his reading ability overnight. The student must want to improve, and he must be willing to put forth effort to improve. The instructor can help him develop insight into the causes of his difficulties. The teacher can stimulate, inform, and guide, but the responsibility for improvement remains with the student. The learner must have confidence in his ability to improve and be willing to extend himself in order to become an effective reader.

PRINCIPLE 4: *Each student should be given an opportunity to set up his own reading objectives and to attain them at his own rate and in accordance with his own plan.* College students are young adults who have goals and attitudes which must be considered by their instructor. Their improvement in reading will occur when they fulfill their academic needs more satisfactorily. Reading must be experienced. It must be practiced and not merely learned about. It is to the student's advantage to use his own subject matter, determine his own objectives, and follow his own plan. He may be reading, for example, a social studies book that is prepared for graduate students while he is reading only as well as a person in the seventh grade. It may be possible for the instructor to suggest to him references written at his reading level which will be of value to him and which will build mental content and consequently make it possible for him to get more information out of his advanced text. This is the instructor's opportunity and his responsibility.

A freshman in the university, for example, has been required in one of his classes to prepare a paper showing his reactions to *Man's Search for Meaning* by Frankl. The concepts in this book must be identified, interpreted, and evaluated in terms of the mental content of the student. Cause-and-effect relationships must be discovered. This young student who is enrolled in adult reading hopes to gain from the class suggestions as to how he can accomplish *his* purpose. The instructor may discover that eight other students are concerned with the same problem, and consequently it will be advisable to focus temporarily the content of his lecture and demonstrations upon the reading requirements of these students. He can show how the students should ask questions, look for answers, and confer with one another in order to reinforce their mental content. He can suggest plans for organization of ideas and show how facts are required to support valid conclusions. As students progress in the realization of their goals and as their needs are satisfied, reading skills emerge. Each student should be regarded and treated as a unique individual. Why should all our students do the same thing at the same time and in the same way?

This may be easier for the instructor but it is most unfortunate for the student.

PRINCIPLE 5: *Attention should be given to physical, psychological, and environmental factors which may be affecting reading.* Although we at Western Michigan University have rejected a clinical approach to reading problems at the university level, we believe that we must consider the student's needs in terms of physical, psychological, and environmental factors which can affect his performance in reading. In our academic world today physical factors such as vision, hearing, and general health are taken care of through the campus health service. The instructor, however, must be alert in identifying students who need this service. Sociological factors which we have found directly related to experiential background and mental content are also important. In a recent study (7) made by the staff of the Psycho-Educational Clinic, 55 percent of over 1,000 college freshmen reported that they were experiencing considerable difficulty in interpreting the information presented to them in lectures and in their textbooks. Why did they have this difficulty? Was their background inadequate? If so, to what extent was the home responsible for this lack of mental content? In attempting to secure answers to these questions, an investigation (2) was made of the attitudes of 100 parents of superior college readers and 100 parents of inferior college readers. It was found that mothers and fathers of superior readers differ significantly from mothers and fathers of inferior readers in their attitudes toward the value of reading, the development of language skills, and the building of background. The fathers and mothers of inferior readers expressed attitudes which suggest that reading is relatively unimportant and of limited value, that children should be discouraged from expressing their ideas, and that children should be restricted from participating in activities which can provide information and experiential background related to reading and language skills. The student sees with what he has seen and hears with what he has heard. Meaning in any situation, listening or reading, is dependent upon mental content. Surely, the mental content of students brought up by parents showing these unfavorable attitudes has been adversely affected. This fact should be considered by the teacher of college-adult reading, for he can utilize some compensating measures to reinforce mental content.

In the college-adult reading program at Western Michigan University we attempt to discover factors affecting reading performance through the use of an Informal Reading Inventory which is found in the appendix of the text, *Reading, A Key to Academic Success* (4). The inventory, along with interviews and observations of the student, helps to individualize our reading program and to discover some of the causes of the student's reading disability. To mitigate causal factors, cooperation with people from other disciplines is necessary. We often request physicians, counselors, and academic advisors to work with us. If a reading program is to be effective, attention must be paid to the individual.

PRINCIPLE 6: *The student should be taught to read effectively the texts required in his college work.* Reading at no time can be taught in a vacuum even though specific reading skills may be developed in isolation. Instead, reading should be taught in a sequence of events, each of which contributes to the goals of the learner. Just as a watch is more than the sum of its parts so effective reading is more than an accumulation of abilities. For the student, learning to read is an integration of skills in a forward-moving, goal-oriented process. Students want to learn how to read more effectively in mathematics, science, social studies, and English in order to accomplish their academic and professional goals. In fact, the writers question whether reading can be taught effectively at the adult level except in the content areas in which the student is actually working. Practice exercises or "busy work" as they are labeled by the mature student are not generally appreciated. From the student's point of view any activity having questionable instructional value is regarded as just so much "filler" designed by a faculty member to keep his students busy. Many of our students are working their way through the university. They are carrying heavy loads. They want to be shown how to improve their reading ability as and while they are doing their regular academic work. Frequently, when skill-drill materials are assigned, they will ask, "Must we do all of these exercises in addition to that which is required of us by our instructors?" "Must we read this material, answer these questions, determine our percentiles, and draw graphs?" This, to the student, is busy work. Instruction should be related to the felt needs of the student, the needs he recognizes and the skills he wishes to acquire. He needs to identify main ideas in a chapter. He needs to know how to read for a purpose. He wants to make ideas his own so that after he has finished a chapter, he can recall the major ideas and the supporting facts. He wants to know how to add words to his vocabulary in such fields as chemistry and physics. He wants to know how to solve problems in the area of science and the social studies. He wants to know how to concentrate upon a reading activity. This matter of concentration is important because 92 per cent of our students point out that concentration in the process of reading is one of their greatest difficulties. In view of this, the presentation of some psychological factors affecting concentration has been made an integral part of the course.

PRINCIPLE 7: *Instruction should be simple, direct, and specific.* Instruction should emphasize reading as a thinking skill, as a purposeful process of identifying, interpreting, and evaluating ideas. Instruction should be concerned with practical procedures rather than with abstract theory about reading. It should consist of well-structured directions to the student as to how various reading skills can be developed. But the development of isolated reading skills is not enough. These skills must be related to one another and operate as a whole. Braam (1) in a recent article has pointed out that "there is a relation between the organization of the instructional or learning situation and the effective development of skills needed by the student." If our students are to make effective use of textbooks and reference materials, it is essential that they have guidance in the integration of reading skills. Furthermore, it is our responsibility to provide this guidance in a direct, specific, and dynamic manner.

PRINCIPLE 8: *The student should evaluate his own achievement at the beginning and end of the laboratory activity.* Gains in reading are observable in the student's ability to make more effective use of his textbooks. In fact, in the opinion of the writers, this change is proof of the value of the whole instructional process. The student's estimation of this growth is of great importance to him. It means more than objective measures no matter how valid and reliable they may be. The student can determine his improvement in terms of whether or not he is able to read for a purpose. Before, he just read. The student can evaluate his performance in terms of whether or not he can quickly identify main ideas in a chapter, in a poem, and in a newspaper. He can measure his growth in terms of whether or not he has been able to master the content of the chapter and integrate new ideas with old ideas. The student can evaluate his progress in terms of the grades he has earned in his classes. Our study (6) indicates that instruction in reading results not only in gains as measured by standardized reading tests but in statistically significant gains in point-hour ratios as well. In addition to these subjective considerations, the student should consider the change that has taken place between the time of the initial and final testing and should determine what reading skills he has yet to master. When he has finished the course, he has made only a beginning, for learning to read in our world is a continuous process which should constantly be expanded.

REFERENCES

1. Braam, Leonard S., "Skills Needs Determine Organization." In J. Allen Figurel (ed.), *Reading and Inquiry, International Reading Association Conference Proceedings*, Newark, Delaware: International Reading Association, 1965, pp. 141-143.
2. Carter, Homer L. J., "A Study of Attitudes Toward Certain Aspects of Reading Expressed by Parents of Inferior and Superior College Readers." In Eric L. Thurston and Lawrence E. Hafner (eds.), *The Philosophical and Sociological Bases of Reading, Fourteenth Yearbook of the National Reading Association.* Milwaukee: The National Reading Conference, 1965, pp. 188-191.
3. Carter, Homer L. J., "Effective Use of Textbooks in the Reading Program." In Oscar S. Causey and William Eller (eds.), *Starting and Improving College Reading Programs, Eighth Yearbook of the National Reading Conference.* Fort Worth, Texas: The Texas Christian University Press, 1959, pp. 155-163.
4. Carter, Homer L. J., and Dorothy J. McGinnis, *Reading, A Key to Academic Success.* Dubuque, Iowa: Wm. C. Brown Company, 1967.

5. Logan, Eleanor, "Minimal and Optimal Reading Skills." In J. Allen Figurel (ed.), *Reading and Inquiry, International Reading Association Conference Proceedings.* Newark, Delaware: International Reading Association, 1965, pp. 473-475.
6. McGinnis, Dorothy J., "Corrective Reading: A Means of Increasing Scholastic Attainment at the College Level," *Journal of Educational Psychology*, 1951, 42: 166-173.
7. McGinnis, Dorothy J., "The Preparation and Responsibility of Secondary Teachers in the Field of Reading," *The Reading Teacher*, 1961, 15: 92-97.

Surveys of College Reading Improvement Programs: 1929-1966

A. J. Lowe

University of South Florida*

The purpose of this brief paper is to relate some findings based on the reading of forty-nine surveys related to college reading improvement programs. These findings should be interpreted cautiously as evidently there have been no surveys made of all institutions of higher learning either before or after Triggs' survey (44) in 1942 unless Leverett's survey (27) included college and university students under an "adult" rubric. Thus, at this time, it is not known just exactly how many programs do exist in the over two-thousand-two hundred institutions of higher learning in the United States. However, since so many surveys of different types have been made, one may see certain trends and note certain developments.

1929-1939

The earliest survey seems to have been made by Parr (34) in the spring of 1929. He mailed a questionnaire to every state university in the country. Forty questionnaires were returned with nine programs being reported all of which were operated by Education Departments. However, a review of the literature up to 1929, shows that at least twenty-four programs had been reported separately up to that time. Thus, it seems safe to say that some colleges were helping their students, however informally, to read better and faster since before the turn of the century. A rather complete and excellent history of the college reading program movement has been written by Leedy (26).

The next survey published after Parr's was evidently that of Strang's (38). In this survey, 158 colleges were contacted with 82 reporting programs. The results of her study showed that sixteen colleges were using *The Iowa Silent Reading Test*, and the rest of the programs were using a total of fourteen different reading tests. The programs varied from individual, incidental help to comprehensive courses in reading improvement. There were no set patterns in price, length, credit, or other facets of the programs.

In 1938, Traxler (43) reported that out of 656 liberal arts colleges surveyed, 76 reported remedial reading programs. Witty (46) and Kopel and Geerdes (25) reported surveys made in the late 30's. Witty

---

* The writer acknowledges the excellent assistance of the staffs of the libraries of the University of Virginia, Loyola University of New Orleans, and The University of South Florida in providing research services.

reported on 41 programs, and Kopel and Geerdes discussed 12 schools offering assistance to college students.

During this early period, education and psychology departments sponsored most of the reported programs. The programs stressed study habits, comprehension, and speed of reading. The cost of the program to the students was quite low and in most cases the program was offered free of charge. Academic credit was given for a small minority of the programs. No great agreement was found as to number of sessions, materials used, or length of programs. The tachistoscope was used, frequently being one of the few "machines" available during this period. The pacer came out in 1930, and as the number of such machines on the market increased so did the use of them in programs.

1940-1949

There were about eight surveys published during the next decade. Triggs (44) reported finding 185 programs, Charters (12) reported on 106 programs, McCaul (30) discussed eighteen programs. Traxler (42) mentioned three programs, Walker (45) found twenty-six Negro college programs, Lindquist (28) reported on 165 programs, and an AACTE report (39) discussed some programs. McCaul was mainly interested in the cost of college reading programs. He found that the charge, when made, was small. Lindquist contacted 634 colleges, and Triggs sent questionnaires to 1,528 schools.

Triggs felt that about 258 programs would be operating in the fall of 1942. She had received replies from 490 institutions. Education, psychology, and administration sponsored most of the programs with English sponsoring about a third.

During this decade, English departments and administrations rose in number as sponsors of programs. Academic credit seemed to be given in more programs than before. As would be expected, programs were quite varied in length, use of materials, machines, etc. During this period reading films and more pacers became available, and these were used in more programs than before as were numerous skills and drills materials.

1950-1959

The period of 1950-59 showed at least nineteen surveys being published. It was also when the first state studies appeared. The late Oscar S. Causey, the founder of the National Reading Conference, made a number of surveys from 1952 to 1955. The largest number of programs reported was in 1955 by Causey (10). He found 418 programs, the most ever reported to that or this date. A few of Causey's findings were as follows:

Control of Program: English, 126; education, 122; psychology, 48; Other or Not Reported, 101.

Credit: 142 schools awarded from one to five hours credit: No credit 132 schools: Not Reported, 144 schools.

Length of Course: About 8 weeks, 16 schools; 18 weeks, 70 schools; 10 weeks, 29 schools; 9 weeks, 10 schools; less than 9 weeks, 54 schools; Not Reported, 73 schools.

Number of Class Meetings a Week: 1 meeting, 45 schools; 2 meetings, 136 schools; 3 meetings, 109 schools, 4 meetings, 21 schools; 5 meetings, 10 schools; Not Reported, 48 schools.

Use of Materials: Twenty-five different workbooks were used in the various programs. Three hundred and ninety-one schools reported using pacers, tachistoscopes, and reading films.

Numerous states were surveyed separately during this period. Colvin (13) reported on forty-three programs in Pennsylvania for the school year 1957-58, Kingston (23) discussed eleven Texas programs for the year 1953, Miklas (31) found twenty-three programs in California in 1952, and the Woods (47) study reviewed twenty-six Wisconsin programs for 1955. The state surveys were a more accurate accounting of the existing programs of the states involved as compared to national surveys using sampling techniques.

To this writer's knowledge, no study has been published since Causey's 1954 survey which listed a higher number of programs. The study, therefore, remains as the most recent inclusive study yet published. This survey, along with all the other surveys made during the three decades 1929-1959, clearly shows the variety of programs in existence and the evident method on the part of many persons to locate and describe college programs.

The first directories of reading clinics were published during this period (1, 5), and newspapers, magazines, and journals contained reports of high reading rates which some surveys reflected regarding the main reason students desired to take reading programs. Reading rate became a topic of student conversation on many campuses and one's rate was often a status symbol, if high enough.

1960-1966

At least fourteen surveys have been reported since 1960 as of the writing of this paper. New directories appeared (15, 16, 17, 19) and some new surveys are currently being made: Florida institutions of higher learning; the participants of this meeting; private organizations' operation programs for colleges; and programs especially designed for law school students. A national survey was reported (37), medical school programs were surveyed (18), two state level surveys were made (29, 10), administrative and professorial thoughts on programs were surveyed (3, 21), the counseling relationship and reading was discussed (24), reading and study skills programs (22) and communications arts (49) programs were reported.

The surveys of most import seem to be those of Shaw (37), Ancker-man (3), and C. Ketcham (21). Shaw made his survey in the fall of 1960. He contacted 505 schools, received 350 replies of which 242 schools reported programs. The total number of colleges contacted by Shaw represented about 25 percent of the schools in existence at that time. Shaw received about a seventy per cent rate of return and about seventy per cent of the respondents reported programs. The rise of English departments and administration sponsorship of programs along with Guidance Center sponsorship was noted, but Education and psychology departments sponsored half the programs reported. Shaw seemed to feel that programs were on the wane, and or people were not too prone to return questionnaires. (Causey (10), Triggs (44), and Leverett (27) evidently did receive a low rate of return and as best can be determined, no follow-up techniques were used to enhance the rate of return. But it should be remembered that these surveyors contacted over a thousand schools in each survey.)

In a single state study (29) made in 1961, all the institutions of higher learning were finally contacted. This involved mailed questionnaires, two sets of follow-up letters, phoned queries, and personal visits to obtain a one-hundred per cent response to the question: "Does your school offer a reading improvement program to its students?".

The directories of Educational Developmental Laboratories (15, 16, 17) and Foster (1, 9, 3) appeared during this decade. These directories show a considerable number of private reading centers now in operation. The surveys of C. Ketcham (21) and Auckerman (3) seemed to be rather unique. Ketcham asked some college professors in selected Pennsylvania colleges and universities to comment on reading programs. The seventy-two respondents alleged that such courses belonged in college and most (94%) felt the students were helped. Auckerman sent an "opinionaire" to the presidents of 300 state colleges and universities. He received over 200 replies of which 138 presidents reported that their school had established programs and whose comments were used in the report which included all the 48 mainland states. Comments from schools having new programs or planning programs were not given. Most of the presidents felt that the reading program was necessary, worth the cost, beneficial to the students, in need of expansion, better financed out of general funds so students would not be expected to pay for it, supported by the faculty, and worth defending to a Board of Trustees but that they might *not* actually defend it in a "showdown" situation with the Board. These two surveys give welcome data to further prove the existence and support of college programs.

SUMMARY

This paper has presented some findings based on the reading of nearly fifty published surveys of college reading programs and related phenomena. Since 1929, when the first survey was evidently made, college reading programs have seemingly grown in number and size. This growth seems to parallel the size in the number of institutions.

the growth of interest in college reading, the development of professional organizations, the expanding acceptance of programs, and the increasingly larger amounts of reading required of college students. The rise in available materials, equipment, and tests for college reading programs has been equal to the need, if not more so. Administration and faculty support has been evident and positive.

Public, private, junior all male, all female, Negro, sectarian, and professional schools have been surveyed either separately or as part of a sampling. Single state surveys seemed to be the most productive. No national survey of all schools has evidently been published since Triggs' (44) study. Education and psychology departments were the pioneers in starting college reading improvement programs with English departments and administrative offices joining in the movement with equal vigor.

It is evident from a review of these surveys and separate reports of programs that some type of college reading improvement programs has existed since before 1900. This was far ahead of the invention of the pacer in 1930, the development of the reading film in 1940, the mention of controlled reading in 1938, the publication of a national journal devoted exclusively to reading in 1948, and the founding of an organization for college reading in 1952.

Perhaps a well developed survey of the schools which never have had nor do not ever wish to have reading programs, and surveys of schools which discontinued programs might reveal some pertinent information. However, no severe decrease in programs seems to be in sight for the near future. It would seem that reading programs have now reached the status-level of death and taxes.

BIBLIOGRAPHY OF SURVEYS OF COLLEGE READING IMPROVEMENT PROGRAMS: 1929-1966

1. Adams, O. L., Jr., *A Directory of College and University Reading Clinics*, College of Education, University of Maryland, College Park, Maryland, 1954, 1958.
2. Andrews, Wade, "Junior College Reading Programs: Goals and Techniques," in O. S. Causey (ed.), *Exploring Goals of College Reading Programs*, 5th Yearbook, Southwest Reading Conference, Texas Christian University Press, Fort Worth, Texas, 1957, pp. 110-114.
3. Auckerman, Robert C., "Viewpoints of the College Reading Program from the Administrative Point of View," in Figurel, Allen, J., (ed.), *Improvement of Reading Through Classroom Practice, IRA Conference Proceedings*, 9, Newark, Delaware, 1964, pp. 321-322.
4. Barbe, Walter B., "Reading Improvement Services in Colleges and Universities," *School and Society*, 1951, 74: 6-7.
5. Barbe, Walter B., *Reading Clinics Directory*, Junior League Reading Center, University of Chattanooga, Chattanooga, Tennessee, 1955.
6. Blake, Walter S., Jr., "Study Skills Programs," *Journal of Higher Education*, 1955, 26: 97-99, 114.
7. Bond, George W., and Botel, Morton, "Practices and Procedures in Ten Eastern Reading Centers," *School and Society*, 1952, 75: 389-391.
8. Boyd, Gertrude, and O. X. Schwiering, "A Survey of Child Guidance and Remedial Reading Practices," *Journal of Educational Research*, 1950, 43: 494-506, and *Journal of Educational Research*, 1951, 44: 443-455.

9. Causey, Oscar L., "A Report on College Reading Programs in the Nation," in Oscar L. Causey and Albert J. Kingston (eds.), *Evaluation College Reading Programs*, Fourth Yearbook of the Southwest Reading Conference for Colleges and Universities, Texas Christian University Press, Fort Worth, Texas, 1955, pp. 109-111.
10. Causey, Oscar L., "College Reading Programs in the Nation," in Oscar L. Causey (ed.), *Exploring the Goals of College Reading Programs*, Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities, Texas Christian University Press, Texas, 1956, pp. 135-137.
11. Causey, Oscar L., "Preface," in Oscar L. Causey (ed.), *Proceedings of the First Annual Meeting of the Southwest Reading Conference*, First Yearbook of the Southwest Reading Conference for Colleges and Universities, Texas Christian University Press, Fort Worth, Texas 1952, p. iii.
12. Charters, W. W., "Remedial Reading in College," *Journal of Higher Education*, 1941, 12: 117-121.
13. Colvin, Charles Raymond, *Reading Improvement Programs and Services in the Colleges and Universities of Pennsylvania: 1957-58*, Unpublished Doctoral Dissertation, Western Reserve University, Cleveland, Ohio, 1959.
14. Cosper, Russell, "The Teaching of Reading in the N.C.A.," *North Central Association Quarterly*, 1958, 32: 264-267.
15. "Directory of Reading Clinics," *EDL Research and Information Bulletin*, No. 4, Educational Developmental Laboratories, Huntington, N.Y., 1960.
16. "Directory of Reading Clinics," *EDL Research and Information Bulletin*, No. 4, Educational Developmental Laboratories, 1962, (second edition).
17. "Directory of Reading Clinics," *EDL Research and Information Bulletin*, No. 4, Educational Developmental Laboratories, 1964, (third edition).
18. Entwisle, George and Doris R., "Study Skill Courses in Medical Schools?," *Journal of Medical Education*, 1960, 35: 843-848.
19. Foster, Charles W., *Directory of Reading Services in the United States*, East Tennessee State University Press, Johnson City, Tennessee, 1962, 1963.
20. Jones, Ernest, "Selection and Motivation of Students," in Oscar L. Causey and William B. Eller (eds.), *Starting and Improving College Reading Programs*, Eighth Yearbook of the National Reading Conference, Texas Christian University Press, Forth Worth, Texas, 1954, pp. 25-34.
21. Ketcham, Clay, "Academic Faculty Members' Attitudes Toward College Reading and Study Programs," in Allen J. Figurel, (Ed.), *Improvement of Reading Through Classroom Practice*, International Reading Association Conference Proceedings, 9, Newark Delaware, 1964, pp. 320-321.
22. Ketcham, Mrs. H. E., "Reading and Study Skills: A Balance," In Alton L. Raygor, (ed.), *College and Adult Reading II, Second Annual Yearbook of the North Central Reading Association*, Minneapolis, 1963, pp. 60-66.
23. Kingston, Albert J., "Analysis of Reading Questionnaire for Texas Society for College Teachers of Education," in Oscar L. Causey, (ed.), *What the Colleges are Doing in Reading Improvement Programs*, Third Yearbook of the Southwest Reading Conference for Colleges and Universities, Texas Christian University Press, Fort Worth, Texas, 1951, pp. 67-70.
24. Koile, Earl A., "Faculty and University Counseling Center," *Journal of Counseling Psychology*, 1960, 7: 293-97.
25. Kopel, David and Harold Geerdes, "A Survey of Clinical Services for Poor Readers," *Journal of Educational Psychology*, 1942, 33: 209-220.
26. Leedy, Paul D., *A History of the Origin and Development of Instruction in Reading Improvement at the College Level*, Unpublished Doctoral Dissertation, New York University, New York, New York, 1958.
27. Leverett, Hollis M., "Nation-Wide Survey of Adult Reading Services," *NART News*, 1955, 5: 3, 4, 6, 8.
28. Lindquist, Franklin R., *Reading Services Provided for Students in Representative Colleges and Universities, Academic Year, 1947-1948*, unpublished Ph.D. Dissertation, Department of Education, Northwestern University, Evanston, Illinois, 1949.
29. Lowe, A. J., "State Survey of College Reading Improvement Services," in Ralph C. Staiger and Culbreth Melton (eds.), *New Developments in Programs and Procedure for College Adult Reading*, Twelfth Yearbook of the National Reading Conference, Milwaukee, Wisconsin, 1963, pp. 85-86.

30. McCaul, Robert L., "The Cost of Remedial-Reading Programs in 18 Colleges," *School and Society*, 1942, 56: 361-364.
31. Miklas, Milton J., *An Analysis of Remedial Reading Programs in California Junior Colleges, Four Year Colleges and Universities*, Unpublished Doctoral Dissertation, University of California at Los Angeles, 1954.
32. Miller, Lyle L., "Current Use of Workbooks and Mechanical Aids," in Oscar L. Causey and William Eller (eds.), *Starting and Improving College Reading Programs*, Eighth Yearbook of the National Reading Conference, Texas Christian University Press, Fort Worth, Texas, 1959, pp. 67-75.
33. Murray, Thelma T., *An Appraisal of Reading Programs in Negro Colleges*, Unpublished Doctoral Dissertation, Northwestern University, Evanston, Illinois, 1951.
34. Parr, Frank W., "The Extent of Remedial Reading Work in State Universities in the United States," *School and Society*, 1930, 31: 547-548.
35. Pellettieri, A. J., "Reading Program for Adults," in Oscar L. Causey (ed.), *What the Colleges are Doing in Reading Improvement Programs*, Third Yearbook of the Southwest Reading Conference for Colleges and Adults, Texas Christian University Press, Fort Worth, Texas, 1954, pp. 87-90.
36. Schiff, Harriet R., *The Reading Center: A Review and Preview*, Unpublished Survey, Michigan State University, East Lansing, Michigan.
37. Shaw, Philip B., "Integration of Reading Instruction with Regular College Offerings," in Emery P. Bliesmer and Albert J. Kingston, Jr. (eds.), *Phases of College Adult Reading Programs*, Tenth Yearbook of the National Reading Conference, Texas Christian University Press, Forth Worth, Texas, 1961, pp. 113-126.
38. Strang, Ruth, "The Improvement of Reading in College," *The English Journal* (College Edition), 1937, 26: 548-559.
39. *Student Personnel Services*, American Association of Colleges for Teacher Education, 1949.
40. Thurstone, Eric L., Lowe, A. J., and Hayden, Lillian, "A Survey of College Reading Programs in Louisiana and Mississippi," In Thurston, Eric L. and Hafner, Lawrence E. (eds.), *The Philosophical and Sociological Bases of Reading*, Fourteenth Yearbook of the National Reading Conference, Milwaukee, Wisconsin, 1965, pp. 110-114.
41. Traxler, Arthur E., "Current Organization and Procedure in Remedial Teaching," *Journal of Experimental Education*, 1952, 22: 305-312.
42. Traxler, Arthur E., "Provision for Reading Instruction in Secondary Schools and Colleges Holding Membership in the Educational Records Bureau," in *1945 Achievement Testing Program in Independent Schools and Supplementary Studies*, Educational Records Bulletin, No. 43, Educational Records Bureau, New York, 1945, pp. 55-67.
43. Traxler, Arthur E., "The Freshman Curriculum and Methods of Teaching," in *From High School to College*, N.E.A. Research Bulletin No. 2, 1938, 16: 89-94.
44. Triggs, Frances O., "Remedial Reading Programs: Evidence of Their Development," *Journal of Educational Psychology*, 1942, 33: 678-685.
45. Walker, George H., Jr., "Remedial Reading Programs in Negro Colleges and Universities," *Journal of Negro Education*, 1946, 15: 119-21.
46. Witty, Paul A., "Practices in Corrective Reading in Colleges and Universities," *School and Society*, 1940, 52: 564-568.
47. Woods, R. Keith, "A Survey of Reading Programs in Wisconsin," in Oscar L. Causey (ed.), *Techniques and Procedures in College and Adult Reading Programs*, Sixth Yearbook of the Southwest Reading Conference for College and Universities, Texas Christian University Press, Fort Worth, Texas, 1957, pp. 134-138.
48. Zerga, J. E., "Remedial Programs," *Junior College Journal*, 1940, 11: 194-5.
49. Ziemann, Norman Carl, "A Study of the Communication Course in Selected Colleges and Universities in the United States," *Dissertation Abstracts*, 1961, 21: 2828-2829.

Some University Students and Their Ideal Study Enviroment . . . As They See It!

Frank L. Christ

Director of University Study Skills Center
Loyola University of Los Angeles

Late in 1965, the Community College Planning Center at Stanford University sent to selected college and university Student Personnel Services officers a report on student study facilities entitled *A Study on Studying* (3). This 56-page booklet reports the results of a doctoral dissertation by John Condon (1) in which he studied some 700 students at six California community colleges to determine how they felt about study facilities. Data for the study were compiled from a 100-item opinionnaire that asked a student to rate various features of study places on a seven-point scale from extremely desirable to neutral to extremely undesirable. Among the features of ideal study space that students were asked to respond to were the following: privacy, group study, plain or fancy decor, size of study areas, smoking and ventilation, noise, and accessibility to educational activities and aids. In addition to questions dealing with preferences in study facilities, students were asked these two questions: 1) Where do you do most of your studying now? and 2) Why do you study there rather than somewhere else?

In the Condon report on students' primary study location and reasons for their choice, 76.6 per cent indicated that they studied at home, 10.1 per cent in the college library, 5.4 per cent in classroom or other campus area, 3.4 per cent in automobiles, and 4.5 per cent in other places. Leading the list of reasons for their choice of study location were the following in order of their frequency of response: 1) quiet, 2) privacy, 3) accessibility to educational aids, 4) convenience of the location, and 5) type of furnishings in the study space.

Because Loyola was conducting an intensive institutional survey, the Study Skills Center decided to replicate the Condon study as part of its evaluation of student study habits and attitudes. With the adoption in the fall of 1967 of a quarter plan for the University, there would be an increasing emphasis on independent study and a real need to evaluate existing conditions and facilities for such independent study. As Dearing points out in a recent book on new developments in higher education (2), when education shifts the emphasis from classroom-centered instruction to independent study, there is a need for more individual study space. The results of this study would provide answers to correct current university problems of student study space and recommendations for the development of ideal study areas in future planning of campus facilities. Permission was granted by the Stanford University Community College Planning Center, and research funds were supplied by the Loyola University Research Committee so that the Study Skills Center could begin its local survey.

Data Analysis

For this interim report, data have been analyzed for 109 non-resident and 105 resident freshmen. Data for the other three classes will be included in the final report to be completed in the spring of 7. Unlike the Condon study in which the data represented responses of students who were male and female, non-resident, full and part time, school age and adult, day and evening of six community colleges, this replication deals only with full-time resident and non-resident male undergraduates of Loyola University.

The data for this report, drawn from 27 items of the 100-item opinionnaire, represent an analysis of the following seven study space problems: 1) decor, 2) furniture, 3) accessibility of materials, 4) smoking, 5) size, 6) privacy, and 7) time of studying. The problem of decor, plain or fancy, is apparently more real to the interior decorator than to the student. Students were not overly concerned as to whether their study space should be elaborate or plain. The tendency was to choose the latter. For 74 per cent of the respondents, a study table or desk was preferred for most studying; an additional 12 per cent had no preference. As to chair hardness or softness, 53 per cent preferred a soft chair and an additional 21 per cent rated this item neutral. As might be expected, 99 per cent of the respondents, resident and non-resident, wanted to have study materials accessible to their study space. For the non-resident who studies on campus, this suggests the need for independent study centers or carrels. When asked to choose between an area where smoking is permitted and one where it is forbidden, 42 per cent found its prohibition desirable, 33 per cent were neutral, and 25 per cent found its prohibition undesirable. When students were asked to select ideal study space size, only 20 per cent felt that a large space, such as a main reading room in a library, or a dining hall, or an auditorium, was desirable. Of the same respondents, nearly 54 per cent thought it desirable to study in a moderately large space such as the size of a small classroom or a living room. Of the same respondents, 76 per cent opted for a small space such as a small bedroom or a carrel. When students were asked to choose whether they preferred studying alone, with two or three others, with about seven others, with about twenty others, or with more than 100 other persons also studying, 66 per cent preferred absolute privacy. Of the same respondents, 51 per cent indicated that studying where there were two or three others was also desirable. On a similar question involving privacy while studying, 78 per cent thought it desirable, 14 per cent expressed no preference, and 8 per cent felt it to be somewhat undesirable. Students indicated their preference for study hours in the following order: 1) Between dinner and 10:00 P.M., 2) Between lunch and dinner, 3) Between 10:00 P.M. and midnight, 4) Between morning classes, and 5) Before breakfast.

To the question that asked where they did most of their studying now, 88 per cent of the residents and 62 per cent of the non-residents responded that they studied in their rooms. The remaining 12 per cent of the residents and 30 per cent of the non-residents responded that they studied either in the campus library or in empty classrooms. An additional 8 per cent of the non-residents indicated that they studied wherever they could—in the public library, at a friend's house, or in their cars.

Students who chose to study in their own rooms indicated four major reasons for this choice: 1) convenience, 2) accessibility of study material, 3) privacy, and 4) quiet.

To a final question that asked students to write in their complaints about study environment on campus, 37 per cent of the non-resident respondents indicated that they had no complaints, 30 per cent felt that there were not enough study areas on campus, 25 per cent directed their complaints to such library conditions as ventilation noise, and inadequate open hours, and 8 per cent complained of inadequate storage locker facilities and smoking-reading rooms.

The greatest number of complaints from residents dealt with their own study environment. For 70 per cent, both the lack of quiet and inadequate room lighting for study were deterrents to study. Only 5 per cent stated that they had no complaints. The remainder of resident complaints dealt with the library, inadequate group study facilities, and a lack of outdoor study spaces.

Tentative recommendations. With only 25 per cent of the data analyzed, no conclusions or definite recommendations can be made. However, certain administrative reactions to ameliorate the existing study environment suggest themselves immediately: 1) a survey of all existing study space, 2) a survey of all campus areas that are now not study spaces but might become quite desirable when adequate lighting and furniture is added, 3) a check of study areas, particularly of resident rooms, to determine adequacy of illumination for reading tasks, 4) a trial extension of library hours until midnight, and 5) a survey of suitable locations for outdoor study space. To the administrator, such reactions mean an expenditure of time, effort, and money. For students, such administrative reactions mean a better study environment—a study environment that students see as ideal.

REFERENCES

1. *A Study on Studying.* A report from the Community College Planning Center, School Planning Laboratory. Palo Alto, California: School of Education, Stanford University, 1965.

2. Condon, John. *Study Habits and Perceptions of Desirable Study Space by California Community College Students.* Unpublished doctoral dissertation, Stanford University, 1966.
3. Dearing, Bruce, "The Student on His Own: Independent Study," in *Higher Education: Some Newer Developments*, ed. Samuel Baskin. New York: McGraw-Hill, 1965, pp. 49-77.

The Shifting Scene in Reading Training at the College Level

Esther J. McConihe
Western Reserve University

THE NATURE OF READING TRAINING IN COLLEGE

If we examine pragmatically the *raison d'être* of college reading programs as they were originally envisioned, we probably will agree that they were designed to fill a need for making college freshmen more effective on the college study program. That they came into being in greater numbers and with greater vigor in the late Forties and Fifties may be due, first, to the great influx of G.I.'s after 1945 and, second, to the influence of the Armed Services training programs in reading and plane spotting. Many of the returned Servicemen who "went to college" in the late Forties had had inadequate academic training in high school; hence they were unprepared for the demands upon their inferential and critical reading ability, their vocabularies, as well as upon their rate of comprehension. Experience in the Armed Forces with teaching reading as well as with "plane spotting" training gave a new perspective on the possibilities for using these methods on college campuses.

Whatever their impetus, their existence is an incontrovertible fact and their proliferation a matter of record. In 1954 Causey (2) in a survey of colleges and universities found 268 reading programs in operation. In 1955, repeating the survey, he found that the number had increased to 418. Even in the absence of statistical evidence, it is a safe assumption that this number has vastly increased during the intervening decade. The increased output of training materials as well as the growing participation of college reading instructors in conferences and conventions attest to this growth.

It is the purpose of this paper to indicate the changes which have developed over this fifteen-year period and in the process to evaluate the significance of the changes.

IN THE BEGINNING, 1950-55

Spache (7), reviewing the years of reading research from 1930 to 1950, listed four emphases in the broadening definition of the act of reading as follows:

1. Critical, flexible reading.
2. Differentiating reading performance according to the purpose of reading and the nature of the material.
3. Factor analysis of the content and processes in various reading tests.

4. Regression to the perceptual emphasis by many reading instructors.

His comment is illuminating. "It [reading] is an integration of the concepts, and hence attitudes, derived from reading with the reader's other experiences into a philosophy and way of life. . . . *Unfortunately, practices in the classroom and clinic have not kept pace with this thinking*" (italics mine).

Generally speaking, this was the status of reading in the beginning of the period under observation. Atomistic, "detailistic" reading treated as an isolated skill often with lip service paid to reading as a way of thinking and to intelligent, critical comprehension—these were more often the rule than the exception.

In the survey mentioned above (2), Causey noted that only 46 of the 418 programs surveyed operated without benefit of instruments such as pacers, tachistoscopes, and films. Of the other instructional materials in use, by far the largest number were those which emphasized a facile handling of a certain sort of material, a routine kind of comprehension little related to genuine understanding or integration of the content and methods used into the experiential background of the reader.

On the positive side it may be said that many reading instructors were dedicated, enthusiastic, energetic interpreters of the meaning in reading and of the development of the concept that "reading is thinking." Frequently the emphasis on rate had the fortuitous effect of jarring the lethargic, passive reader loose from his compulsive attention to detail and releasing his mind so that he attended to ideas and meaning instead. Such was the approach of the authors of *The Meaning in Reading* (9), an invaluable workbook that has gone through at least four revisions since its original publication in 1943.

One explanation for the "atomistic" approach may be that the climate of the early fifties was favorable to increasing emphasis on the significance of reading *per se* with the result that more people were thinking more about reading than at any other previous time. As a result, for the first time colleges were becoming aware of reading as an important study skill, too frequently a study skill missing from the repertoire of many of their students. In their urgency they inaugurated large group training programs. Such programs were feasible, or seemed to be, only by the use of uniform text material of a "straight forward" type and by the added support of mechanical devices. (I have always felt that it's a moot question as to the degree of mechanization in using a pacer as compared to using certain "detailistic" workbooks. More on this later.)

The burgeoning college enrollment contributed to this condition. As more students appeared on the campuses, there were obviously a greater number of students who required reading improvement. This condition cannot necessarily be expected to continue, and indeed it has begun to change already at the smaller, private institutions where selectivity is high. Here the very increase in numbers operates as a selective device, and the ineffective reader is less likely to be accepted.

However, with the rapid rise of the junior college, especially those which are supported by the local municipalities, we are experiencing an enormous increase in the demand for improving reading skills. It is to be hoped that the changes which will be discussed later in this paper will have a salutary effect upon the manner in which this new wave of students is trained.

NOW IN 1966

Where are we now? How has the climate changed? What are the present concerns? Where is the emphasis being placed? The college campus of 1966 is often a whirling mass of new, half-developed, unformed ideas, motives, goals, yearnings, and complexes. Its students find themselves in more unstructured situations with more overt crosscurrents of thought to handle, and more pressing problems to face than an earlier generation of students (or so it seems to some of us). However far one is willing to carry this picture of the campus the fact remains that the pursuit of learning is in a state of change and uncertainty, and we in reading must operate within this framework.

As I see it, the base of the pyramid of change may be said to be the rationale that appears to underly our present practices. This rationale appears to be as follows: Reading as one of several study skills should fit the needs of the student, and his needs, though they have a commonality with those of all other students, are unique to him.

The changes emanating from such a premise I have chosen to classify under five headings:

1. Counseling and reading
2. Individualization of training
3. "Settling in" on the use of instruments
4. Stress on comprehension at a new level of sophistication
5. The two-year college and its peculiar needs

We are beginning to discover that much of the effectiveness in training stems from better understanding of the trainee. Reading, we have always said, is very close "to the inner citadel of the personality." Abrams (1) noted as early as 1963 at this conference that emotions and concomitant personal defenses are factors to reckon with in the teaching of reading. Henry P. Smith (6) indicated last year that the attention to counseling in college reading programs probably stems from an awareness that some reading problems arise from emotional causes rather than lack of background knowledge. As you know, McDonald has frequently included this in his consideration of factors to be considered in reading training.

Stemming from this are the present attempts to make college reading an individual undertaking. We have in this conference in these later years given time and space to ways and means of giving more attention to the individual needs of each student. Raygor (5) in listing "six simple truths . . . about reading and reading instruction" includes "Individual treatment is better than group treatment" and "Modern self-instructional methods make individual instruction possible on a large scale." At the 1962 North Central Reading Conference, Jackson (4) apprised his approving audience of his firm conviction that the best reading training is that which is counseling oriented.

Quite different from the first two changes is the third, a more "seasoned" attitude toward the use of instruments. I do not believe there is a great falling-off in the use of mechanical devices. It would appear that the change comes in a changed attitude on the part of the users. Instructors no longer look upon them as the heart of a good program but rather as motivating devices and as supplementary aids to perfecting skills through interesting drill. This is a much-to-be-desired improvement that was long overdue.

The literature on college reading, not, to be sure, from dissertations but from journals and conference proceedings, contains many indications that the emerging concept of what constitutes good comprehension for college students is something more than answering eight of ten multiple-choice questions (mainly about details) on a comprehension quiz. Haffner (3) is eloquent on this subject.

> High level comprehension in any field requires adequate vocabulary, is critical and insightful, seeks truth, makes generalizations, sees relationships; looks for evidence, sees cause and effect, differentiates related ideas, applies ideas, and is guided by values.

Such a criterion makes comprehension a matter of logical thinking, of thorough understanding of the intricacies of the language, of facility in handling verbal complexities, and finally of the acquisition of an extensive understanding of verbal concepts.

Further evidence of this trend toward greater depth of comprehension is the appearance in the last few years of such workbooks as Leedy's *Read With Speed and Precision*, Eller and Hill's *Power in Reading Skills* and Sherbourne's *Toward Reading Comprehension, Form 2*, Spache and Berg's second edition of *The Art of Efficient Reading*, to name a few. It should not by any means be inferred that such thorough approaches to reading are peculiar to the mid-sixties. Glock, Wise et al. (previously mentioned) and Shaw, have been with us for as long as two decades and are classic. But college reading instructors in the late Forties and early Fifties had to settle for a limited number of published texts and workbooks suitable for classroom use. Norman Lewis was a classic then (and in this writer's opinion continues to be). The *College Developmental Reading Manual*, copyrighted in 1943, was probably a record-maker as a pioneer text truly geared to comprehensive college-type reading training. The point to be made is that the breed is multiplying at a gratifying rate.

In this connection it would be well to sound a note of warning. There should be no confusion as to the purpose of a text or workbook intended for a class in reading improvement. It is the reading process that is being trained. As logical thinking, inferential and deductive processes, clarity, breadth, and depth of concept formation are a part of this process, they must be taught. But the end goal is not literary appreciation. It is effectiveness in deriving meaning. The authors of reading workbooks must be aware of the distinction. It is the difference, for example, between such texts as *The Meaning in Reading* (Wise, et al.) or *Improving Reading Ability* (Stroud, Ammonds and Bammon) and the more English literature-oriented workbooks.

The fifth and final change is that of the special needs of the junior college or the two-year college. The two-year college, especially a tax-supported institution, has made itself felt as a new problem in the mid-sixties. This is a population of students that is far from the classically trained "college preparatory" college freshman. This student frequently considers college a "trade school" for jobs in service, industry, or business. Like so many others of his generation, he is not skilled in the subtlties of written expression. It comes as a surprise to him that the comma is intended as an aid to understanding what the writer means. He has considered it simply an annoying little hook of which he keeps a penful and which he distributes with reckless abandon or miserly scarcity depending on his whim. But he may also be the future Congressman, prosecution lawyer, business executive, fund raiser, advertising man. Is he going to be a word-impoverished, concept-poor, ineffective handler of ideas in print? He is if we become overwhelmed by his great numbers and settle for less than "good" in his reading training.

IMPLICATIONS

Very briefly, let us note a few implications of these trends.

1. A greater need for sophistication in the training of instructors in college reading is obvious. These teachers will require broader bases of skills, wider acquaintance with the psychology of reading and with counseling, greater depth in and understanding of the higher level comprehension skills.

2. New techniques must be explored. Such explorations as that reported by Lewis and reviewed by Summers and Hubrig in the *Journal of Reading* on possible relationships between auding and reading need to be followed up. The report is inconclusive and the idea merits further research. Cloze as a means of teaching comprehension which takes cognizance of the function of linguistics appears to have a future. The use of programming is an extremely important new area for exploration and study.

3. Closed-circuit television as well as other large-group techniques requires continuing research.

4. The special needs of the junior college furnish a genuine challenge.

In conclusion, I feel constrained to inject a pessimistic note. Earlier I quoted Spache as saying that in 1954 practices in classroom and clinic were lagging behind the broadening definition of reading. It is still likely that some college reading instructors are "yea-sayers" who attend conferences or read journal articles but who do not incorporate the ideas therefrom into a newer, more dynamic program. Our hope is that their number is small and their opposite numbers are legion.

REFERENCES

1. Abrams, Jules C., "Thinking Processes and Their Relation to Comprehension," Yearbook of the National Reading Conference, Inc., Milwaukee, Wisconsin, 1963.
2. Causey, Oscar L., "College Reading Programs in The Nation", Fifth Yearbook, Southwest Reading Conference, 1956, ed.: Oscar L. Causey, Texas Christian University Press, 1956.
3. Haffner, Lawrence E., "The Ingredients of High Level Comprehension", *Reading and Inquiry*, International Reading Association, 1965, 10, pp. 106-8.
4. Jackson, Boyd B., "Counseling and Reading, Their Interrelationship", *College and Adult Reading*, Second Annual Yearbook, North Central Reading Association, 1963, University of Minnesota Press.
5. Raygor, Alton L., "Individualizing a College Reading Program", *Reading and Inquiry*, International Reading Association, 1965, 10, pp. 165-170.
6. Smith, Henry P., "Innovations in College Reading Programs", *Reading and Inquiry*, International Reading Association, 1965, 10, pp. 232-235.
7. Spache, George D., "Psychological Explanations of Reading", Fifth Yearbook, Southwest Reading Conference, ed.: Oscar L. Causey, Texas Christian University Press, 1956.
8. Summers, Edward G. and Billie Hubrig, "Doctoral Dissertations Research in Reading Reported in 1963," *Journal of Reading*, 9: 319, International Reading Association, Newark, Delaware.
9. Wise, J. Hooper et al. *The Meaning in Reading*, New York, Harcourt Brace, 1960, Revision.

Trends in Adult Reading

Justin H. Miller
New York University

When we speak of trends, we must think in terms of direction. Directions may go toward either the good or the bad, or they may do both. As in fact they both do in adult reading today. Trends may also encompass various aspects of a subject, such as administration, programs, teaching techniques, research projects and methods of promotion. In adult reading they are at work in all of these areas.

1. The worst of the trends in adult reading stem largely from promotions. This promotion in turn appears to have arisen from someone's discovery that one can earn a good deal of money from adult reading. This discovery has resulted in several unfortunate promotional attempts.

The claims are the old familiar ones with very little polishing up. Reading rates are astronomical; comprehension is poorly defined. Reading is not defined at all. Skimming, of course, is never mentioned. Special skills are not mentioned in it at all. The advertising line is, in effect, the same that we have had to live with for the past several years.

That such a line and so much exposure would tend to affect those who do not know any better is to be expected, of course, but its effects have not stopped here. I myself was shocked a few years ago to hear a discourse on this matter by a man who is well known in reading in the northeastern part of the United States. In any case he witnessed a demonstration and came away thoroughly convinced. Indeed he rather scornfully compared these numbers to those of the rest of us who teach adult reading and sneered at the lower number quoted by those of us who, he said, "use machines."

I was amazed that a man who claimed to be a reading expert and whose reputation is as fine as his could show such ignorance of the way in which adults read. Many of you here may have had similar experiences but it shocked me. Fortunately this sort of thing is rare in my experience and so I do not have to call it a trend, but simply an unfortunate by-product of one. I am relating this experience to you simply to show what can happen with a combination of intense advertising and ignorance.

The gentleman I spoke of would have been a good deal less astonished, had he taken the trouble to familiarize himself with some of the research that had been completed at the time he made the speech. He would have known, for example, that Dr. Spache had already looked into the claims that had been made and had run a fine study to see what was happening. He utilized camera and comprehension checks and found that the average rate of reading of these people was four hundred to six hundred words per minute, with the fastest being about nine hundred words per minute. He also found that skimming rates ran much higher—eighteen hundred to twenty-four hundred words per minute. He concluded definitely that these were skimming, because he checked the reading from the point of view of comprehension as well as that of photographing eye movements. Dr. Spache did not set out to debunk anyone's claims, but he showed conclusively that the claims made were actually those for skimming.

At about the same time other studies by Taylor and Liddle reached very much the same conclusions.

2. This was a few years ago. One would have hoped that these studies might have started another trend—that of further investigations into the exact nature of adult reading in order to clarify questions of this sort. After all, we do not know nearly as much as we should about just what happens when a reasonably intelligent adult sets out to read something. And if we don't know what happens when he reads, we certainly cannot pretend to know what happens when he skims.

Thalberg and Eller attempted to add some light to this issue at the 1963 meeting of the National Reading Conference. Their findings tended to confirm those of Spache, Taylor and Liddle in that these high speeds appeared to be skimming.

In that same year, an interesting study was published by Stephens and Orem. It attempted to go into the matter of just what fast reading is. They checked a large group of people who, according to their own claims, completed a reading course at speeds of over fifteen hundred words per minute. The characteristics of the people involved may be summed up as follows:

All of the people entered the course reading at speeds of over three hundred words per minute. I think that all of us would agree that, by and large, people who begin reading couses at better than average speeds are likely to end up with faster speeds than others.

They all completed the course reading at speeds of over fifteen hundred words per minute. Most of us would not claim results that are that high or at least we should say that they were skimming rather than reading.

They could read at these speeds only in familiar materials for which they had a good conceptual background. I think that for most reading people this would go without saying.

Reading was a major form of recreation for all of them and none of them recalled any difficulty in learning to read as a child. All reported that they were above average in academic achievement.

The next idea is an interesting one and I will quote:

"All of the first readers evidenced good visual memory. A dependence on visual imagery and a general preference for visual symbolic experience over the aural." This is an interesting conclusion in that it mentions one of the facets of fast efficient reading. It brings up two questions:

1) The authors do not give us any details as to how they determine this factor.
2) There seems to be an implication that some people favor either the visual or the aural. There may be a good deal of truth to this. However, many of us have found that people can have their emphasis changed from the aural to the visual if the proper teaching techniques are employed and that the change can go on to a remarkable degree. Many of us would feel that it is a mistake to categorize readers as either fast or slow without first seeing how effective such instruction can be.

Coupled with that is a conclusion by Stephens and Orem that the faster readers do not require "inner speech" as an essential element in reading comprehension. However, they all experienced some of it in reading, even at faster speeds.

3. This would check very closely with the experiences of those of us who spend a great deal of time teaching adult reading. We know that one of the characteristics of slow reading is excessive dependence upon inner speech. We also know that the reduction of this inner speech can contribute a great deal to increased reading speed, without loss of reading comprehension, and we know that this is a good part of many courses in adult reading.

Here we have an area that cries out for more research. We all deal with it constantly and yet conflicting claims are made for the effects of inner speech. Most of us feel that we cut it down but do not eliminate it and that reading speeds up to eight hundred or more words per minute are possible with a smaller amount of inner speech. A commercial instructor claims that she eliminates it completely but that it takes a speed of fifteen hundred words per minute to do so. No research is cited to back this up and the research that there is tends to contradict it. All of us who teach adults to read better would agree on the need for more exact and definitive research in this area.

I cannot say what form this research should take. New procedures will have to be developed; new instruments will have to be used. The research may require the assistance of neurologists and psychiatrists. It will certainly call for new, bold, and imaginative ideas. But it should be done and I should like to be able to stand here two or three years from now and be able to say that such work is in progress, and is a strong trend in adult reading.

4. An even more startling result was reported by the same team. They claim the following:

". . . all reported that they read parts of several lines as they went across the page; they did not need to observe the sequence of speech:."

I will not attempt to pass judgment on this claim, particularly since no investigation has been done to establish and to prove or disprove its possibility. Many of us would feel that the claim is nonsense: nevertheless there it is. It should be investigated thoroughly.

The conclusions that were reached at the end of this study are twofold. Many of us would disagree with the first, but I think that no one would quarrel with the second.

The first conclusion is that there is a significant proportion of the population in the United States who can read at speeds in excess of fifteen hundred words per minute. This is a conclusion with which many of us would disagree.

The second conclusion is that the nature of this phenomenon deserves attention and study. With this no one would have any quarrel. Let us hope that more such studies come along in the near future.

A more recent study by Florence Shale was reported in the *Journal of Reading* for April, 1965. It may well be useful in helping us to understand the claims that we frequently hear these days. Her object in this study was to check methods of what she called "vertical reading" and by this she meant any reading in which the eyes do not move horizontally across the line. This, of course, included most of our skimming techniques as we think of them today.

She divided the various skimming techniques into three parts. Two of them she called "directed" skimming and she referred to one of them as "non-directed" skimming. Directed skimming consisted of the two traditional approaches as most of us think of them:

1) Reading only selected parts of the material with the object of obtaining the highlights only.
2) Reading only the material in which one is interested. This is also known to many of us as "scanning."

Her study added nothing to what we do not already know about our directional skimming and scanning techniques.

By "non-directed" skimming she means the practice of reading down the middle of the page. She reports that for most people this is possible only if the column, as printed, is not more than 1.25 inches wide. Such a width may be characteristic of many newspaper columns but certainly not of most printed material. Her study seems, therefore, to agree with all previous studies which would tend to show that reading speeds much in excess of eight hundred words per minute are not reading but skimming and that the advertising that says otherwise is a disservice to people. It is highly doubtful, however, that she can do much to correct this trend. We will simply have to continue our own work in our own way. We can only hope that the public will eventually become disillusioned with outrageous claims, while not giving up the idea of reading improvement altogether.

5. There is another area in adult reading which shows signs of being an encouraging trend, and that is the area of reading programs

for business and industrial concerns. As we know, business and industry has been interested in reading programs for a good many years now, and has been quite active in its use of all kinds of programs. This includes programs from people like ourselves, packaged devices from commercial firms, the company's own instructors, and just about every form of instruction there is. As of three years ago, a study presented by Dr. Patterson at this conference showed that almost half of all companies studied had tried reading improvement programs over a four year period. Half of these companies had programs in effect at the time the study was made.

Judging from the experience of New York University within the New York metropolitan area, the number seems to be growing still. The university was one of the first to run reading programs for business and industry anywhere in the country. Its experience would suggest that there is a great deal still to be done in this field and that other institutions should make determined efforts to do such programs for business and industrial firms in their area, if they are permitted to do so.

We may reasonably suppose, I think, that business and industry should have a better record than the general public in its choice of educational programs. It should be less subject to high-pressure advertising and ridiculous claims, and in general it is. Business and industry generally have facilities for checking the value of competing educational establishments in advance of committing themselves to any program, and they frequently do just that. I have known of cases where giant corporations in the New York area sent men to take reading courses in all available institutions. In one case that I know of, three men were sent to each establishment and each one submitted written reports to the training director. He then proceeded to confirm this report with information that he was able to obtain from the organization themselves, after which he decided which one of the programs he would use. In this particular case the investigation led to a program that began in 1961 and is still continuing. The program is for one of the larger insurance companies, which has its headquarters in New York City.

It would seem reasonable to expect such activity on the part of any good training director. After all, he is usually a man with a background, not only in personnel work, but also in education. He should, and usually does make it his business to know what is happening in each of the fields that concerns him, and he certainly has the facilities to get the information that he needs. He should be much harder to fool than the general public, and our experience at New York University tends to show that he is.

Of course, there are exceptions to this. There was an unfortunate case of a major oil company where the training director apparently accepted the advertising without investigation. This director was warned by his colleagues of other companies that he was making a big mistake, but did not change his mind. In a case of this sort it is frustrating to watch what happens but one can never be sure of the pressures that may exist. The fact that this particular director did not investigate all that was available and did not report to the firm would suggest that he may not have had much choice in the matter. Inevitably this is one of the hazards that are involved in dealing with large companies. Occasionally a vice-president or a president may overrule a knowledgeable training director, to the detriment of the company.

Still our experience with business and industry at New York University over a thirteen-year period has been an encouraging one. We began with programs for such pioneer organizations as the Federal Reserve Bank, of New York, and the Port of New York Authority. These consisted of both reading improvement programs and clerical perception programs and both were quite successful. As of now, both these programs continue to run. The Port of New York Authority does so on its own, and the Federal Reserve Bank still calls in the University.

In those days the programs were taught by either an instructor or supervisor of the Reading Institute of New York University, simply as an extra chore—something that he did in addition to his regular duties, usually for an extra fee. But over the years the number of programs requested of the university increased to the point where a supervisor was appointed whose jobs were (1) to teach the business and industry programs and (2) to administer the Reading Improvement course for Adults, that is run in the evening hours, and that is open to the general public. I was asked to take this position in 1956, after I had returned from an industrial reading program for the motion picture industry in Southern California—a program that had occupied my time for half a year.

At the time I came into this position it was just starting to move along. The programs were still the exclusive province of the Reading Institute and were under its administrative staff. Generally speaking I was permitted to run them as I saw fit. But from time to time peculiar pressures and situations came along that resulted from the fact that the Reading Institute is, after all, a remedial reading institution. These pressures were not serious, however, and from 1956 to 1961 the program grew to such an extent that while one man could still handle it, he had little time for anything else.

The program continued to grow to a point where the present Dean of the School of Continuing Education felt that another administrative change was advisable. Toward that end he recently created the position of Coordinator of Reading Services to Business and Industry. This is the position that I now hold; at its creation, it was hoped that this would further expand the program to the point where an independent organization would be required to administer it.

Whether this will prove to be the case is not yet clear, since the position was only created this fall. But let us hope that whichever way it goes, it will prove to be a trend in reading improvement programs. Reading programs should come from colleges and universities, but of course we do not have the advertising budget to keep up with private organizations. Indeed most universities do not have an office that is set up to run programs for business and industrial firms as New York University has; and this, of course, must limit movement in this direction.

Still a great deal can be done to extend our influence in adult reading. We must, however, become reasonably aggressive to do so, and this is extremely difficult for many of us. It should be done, however, if we are going to continue an essentially healthy trend.

I hope that future reports on trends in adult reading will note the greatly expanded influence of such organizations.

Counseling and Reading Skills for the Terminal Student

Paul H. Schoenbeck
Mira Costa College

FALLACY OF TERMS

"Oh, Johnny! Not again." A distraught young mother was watching her small son hurriedly trying to replace on some spice jars the labels which he had but a few moments before removed. As a result of Johnny's endeavors, all sorts of errors were evident. What should have been celery salt was cinnamon. What should have been cloves was pepper. But just because the labels on the spice jars were misleading, was no indication that Johnny's mother could not use the spices. All she had to do was carefully examine the contents of each and every jar to determine what was really there.

This little story simply serves to illustrate the ridiculousness of labels which we attach, many times, to students in educational institutions. Many times these labels are just as misleading as were those which Johnny replaced on his mother's spice jars.

If we, as teachers, are going fully to develop the native abilities of the students entrusted to our guidance, we simply cannot categorically label them terminal, remedial, MH, EH, MR, or any of the other alphabetical designations which we find convenient to use. Rather, just as Johnny's mother had to examine the contents of the spice jars carefully before she could use them correctly, so also should we carefully examine the accuracy, or perhaps the inaccuracy, of the labels which have been attached to our students.

What do we know realistically about the individual student's personal hopes and aspirations, about his socio-economic background, about his true educational background? Is the label which he now wears a reliably valid identification? Or is it merely a convenient device to enable us to group him with others wearing the same label? If it is, then we can subject him to a prescribed and arbitrary curriculum which is supposed to be an educational catharsis for every student in that group. But as we all know, this procedure is proving to be woefully inadequate.

When the terms or labels that are used as the title of this presentation, "Counseling and Reading Skills for the Terminal Student," are heard, what—exactly—do these terms convey to you?

What do we mean by the term, counseling? Is counseling an actual attempt to help the student realistically appraise his true, individual potential for life, or is it an expeditious attempt simply to schedule him into the classes that are designed to pacify the educational inadequacies which he possesses? How much true counseling took place in the case of Albert Einstein, for example, when, in his early years, because of an erroneous label, it was suggested that he be placed in an institution for the mentally retarded?

Or what do we mean by the label terminal student? For what is he terminal? When we use the label reading skills, what does this label actually mean in relation to the individual student? Are the reading skills that we are going to teach this terminal student the reading skills that are necessary for the academician, or are we talking about the reading skills that are needed to equip this particular individual for a useful and productive life?

THE TERMINAL STUDENT

Let us consider this so-called terminal student. Undoubtedly this person knows in his own mind that he cannot read. He has probably experienced this situation for the last ten years of his academic life. Every year he knows that the situation gets progressively worse because the material that he is expected to decipher becomes increasingly difficult. In the fall of the year when he starts to school, he knows without a doubt that he is going to fail in everything where reading is required. And yet, we expect this student to be a lovable, nice, well-behaved individual in the classroom.

How many of you would like to go to work tomorrow and the day after and the day after that, and know without a doubt that you are going to be told by your employer or your supervisor that everything that you do, or almost everything that you do, throughout the entire day is wrong; that you don't understand; that you aren't applying yourself. If you ask for help, direction, or guidance so that you can improve, very little, if anything, is done to help you individually. In like manner, the only hope that the terminal student has is that someone is actually going to help him and give him guidance and direction. He does know, or probably has heard, that there are new techniques, new concepts of teaching reading, new technologies involved that possibly can help him with the decipherization of the symbols on the printed page, a feat which he has not been able to accomplish the last ten years of his life. But in the meantime, he knows that he has probably acquired a label putting him in a specific category with others of his kind that will designate to his future teachers his lack of reading ability.

THE CLASSROOM TEACHER

On the other hand, let us consider the reading teacher who is confronted with a classroom of anywhere from fifteen to forty people of this calibre. Undoubtedly he will have many levels of reading ability within his class. He will have many levels of capacity within his class. He will have all sorts of educational backgrounds represented. In California, as most of you know, if the student is eighteen years of age and a resident of California, the Junior College must enroll him whether or not he has finished high school. There will be all sorts of socio-economic backgrounds. There is also the consideration of why the student is attempting to come to college at all. Is it because he, himself, really has the desire and is deluding himself into thinking that he can achieve when he basically knows that he can't read well? Or is it because of parental direction and the status symbolism of having a child attend college? Or is it possibly because he is trying to escape the draft? These and a multitude of other problems confront the teacher when he meets this class of forty individuals the first day.

CLASSROOM SITUATION

What is the classroom situation? At Mira Costa, any student who achieves a raw score of fourteen or below on the ACT test must take the reading development course—remedial reading—if you prefer. The classes will range in size from fifteen to forty students. Naturally there is going to be a high diversification of lack of skills which these individuals are going to display. In most classrooms the usual procedure is to prescribe the same "medicine" for everybody in the class.

Looking at a classroom situation like this on the first day, we might well compare it to forty patients sitting in a doctor's office. Wouldn't it be just a little bit ridiculous for a doctor to say to these forty patients who have all sorts of individual aches and pains, "Okay, today we all are going to take APC's and if that doesn't work, tomorrow we will all take aspirin, and the following day we will all take bufferin." The sheer ridiculousness of such a situation becomes apparent, and yet in most cases, this is exactly what we do with students who come to us to improve reading skills. They have a high diversification of lack of ability, and yet we prescribe the same "medicine" for each. There is no consideration whatsoever of the individual needs or wants or desires. All students will start with the same lesson and will proceed at the same rate regardless of individual deficiencies. Therefore, at this point, real counseling has to start.

Classroom at Mira Costa — General

At Mira Costa, we do our own classroom testing to enable us to begin the diagnosis of individual lack of abilities. We start with a group test, and we can arrive at reliable scores for a large percentage of the people within the class. But for a number of these students, the scores fall into the extrapolated area. They have to be tested with a lower ability-level test so that we can arrive at some type of reliable grade placement for them. In some cases the abilities are so lacking in the field of reading that non-verbal tests have to be administered. What we want to ascertain is a relatively reliable grade placement, as well as to determine the greatest area of deficiency of the individual student, not for the group as a whole. When we have obtained these scores, and we have found what appears to be the greatest area of difficulty, we can then give the individual student a realistic appraisal of his deficiencies. It is vitally important that the student understand without a doubt what his abilities are, and possibly even what his potential capacities may be. Without the benefit of this realistic appraisal, the instructor cannot hope to establish rapport with a particular student. There must be a common understanding as to where the person's innate abilities and potentialities actually lie. On the other hand, the student must also realize and understand his limitations.

Classroom at Mira Costa — Specific

At Mira Costa each student is started in reading materials at least two years below the level of the ability as shown by the standardized test. In this manner, the student who has, as we have mentioned before, experienced nothing but failure, frustration, and defeat in any kind of reading situation, suddenly finds a situation in which he can achieve with at least some degree of success. This is vitally important, because when we start to work with this individual and start to increase the difficulty of the material being read, and start to increase the difficulty of the vocabulary level, he is not confronted with a multitude of errors which he finds completely overwhelming, but is faced with one, two, or three errors on an individual paper. These errors can be discussed with the instructor, who can counsel him in terms of improvement of that particular skill where the error was self-evident. During this process, the student and the teacher are developing a rapport. A motivation starts to develop for the student to increase his proficiency in reading because he finds that he is not faced with recriminations, or sneering remarks about his lack of ability. Rather, he finds a genuine interest, a genuine empathy from the instructor to his particular problem. The reading laboratory is a place where he can make mistakes and know without a doubt that he is going to be shown in a kindly and sympathetic manner how to avoid those mistakes in the future. No longer is he simply a number in a class, but he is confronted individually with the errors which he individually has made, and the confrontation is made in an atmosphere of understanding, compassion, and a sincere desire to help the student improve the particular skill with which he is having difficulty.

Classroom at Mira Costa — True Counseling

In like manner, the discussion of what this person really wants to accomplish in life becomes live and vibrant, and it becomes simplicity exemplified for the instructor to find out what really is inside this person. What does he want and need to accomplish? What are the goals that this person as an individual human being wants to fulfill? Through these discussions day by day and week by week, true counseling takes place on a continuous basis and not on a one-shot basis, "Take this class because it will do you some good." There is a continuous self-evaluation—the checking of improvement or lack thereof in various areas—the evaluation as to whether this student is achieving what he wants for himself instead of fulfilling what the teacher thinks should be accomplished for everybody en masse.

As a result of this type of individual work within a classroom situation, we find that the label, terminal student, which we gave to many students really is not applicable. We find that many of these students have a tremendous capacity. Once they are motivated to do something to help themselves and are given the assistance which they individually need to improve their own inadequacies, they can no longer be classed as terminal. Many improve their reading skills to the point that they do have the possibility of achieving satisfactorily in a four-year institution.

PROBLEM AREAS

Materials

But there are many problems that exist. Because we find this high diversification of lack of skills, we need a high diversification of teaching materials. Unfortunately, it is unlikely that any publisher or any author can present a text which is going to be the answer to all the problems we find in any given classroom situation. But with the acquisition of various materials from various publishers, we can adapt these materials individually to fit the needs of a particular student. This is what we are attempting to do at Mira Costa.

Teacher Personnel

Another problem is the lack of properly trained teaching personnel. Our teacher-training institutions, on the whole, are training teachers on the basis of a structured classroom situation. A structured classroom situation in the field of reading, particularly in the field of remedial reading, simply is anathema. Our whole philosophy of instruction has to be changed if we are going to accomplish that which we want to accomplish in our school systems. We must educate the individual according to his own limits and not according to a preconceived notion that every student should be an academician. School administrations also must change their viewpoint as to the importance of the whole field of reading, not only on the junior college level, but specifically in the elementary, the intermediate, the junior high, and the senior high schools.

Administration and the Public

We are fortunate at Mira Costa because we have an administration, as well as a board of trustees, who realize that reading ability is a paramount need for anyone who wants to achieve, regardless of level.

The general public as well has to be properly informed about this vital aspect of education. If we continue to try to make everybody fit an average and to put everybody into a particular mold, we in the reading field might just as well resign. We are never going to achieve that which we are attempting to achieve if we ignore individual differences. In fact, this destroys our whole basis of educational psychology—the fact is that we, as individuals, are different and always will be different in most respects.

Grading

Another problem that arises with this type of classroom instruction is the letter grade. If a student advances significantly in over-all reading skills, but is still far below the point where he theoretically should be, on what basis do we grade him? Do we grade him on the basis of improvement, or do we grade him on the basis of where he should be at his chronological age? Our present system of A, B, C, D, and F grades is ridiculous, to say the least. The entire concept of letter grading has to be revised if we are adequately to educate the individual rather than the group. If the concept that we should educate the individual for life rather than for college ever becomes prevalent, we can then perhaps arrive at a sensible evaluation of progress.

Our greatest concern should be the student who is brought to the level of reading which is commensurate with his chronological age. This student develops an exuberant enthusiasm to continue his education, and ultimately receive a degree from a four-year institution. He has found that this whole system of reading and proper acquisition of knowledge isn't nearly as difficult as he thought it was. But the serious problem that presents itself now is the fact that this person still lacks a tremendous amount of background material which he should have been absorbing throughout his junior and his senior high school years. As a result, even though his reading ability has been enhanced and improved and has been brought to the level to fit the mold, he still is going to have an extremely serious problem in achieving in a four-year institution in competition with those people who have this wealth of background information he lacks. For this reason, we should carefully review our entire educational system. It is not enough to provide him with the basic skills. We must also provide him with the opportunity to "catch up" in order that he may fully utilize his God-given potential.

CONCEPTS USED AT MIRA COSTA

What, then, is our concept of "Counseling and Reading Skills for the Terminal Student" at Mira Costa?

Counseling cannot be a half hour session with a counselor in the administration office. Rather, it must be a continuous process with the instructor—if it is to be effective.

Reading skills for the individual student must be improved on the basis of individual need rather than on that of complete perfection of all skills for all students. The program of instruction must be completely flexible to meet these needs.

The label "terminal student" should be discarded. Even as we use the term, not all students so labeled are "terminal."

Why don't we start to counsel and educate people for life rather than for college? If that life leads to college, with proper counseling, the student will be prepared to meet the challenge. If, on the other hand, that life leads to endeavors not connected with the academic world, that student, with proper counseling, will also be prepared to meet the challenge. He will realize his capacities as well as his limitations.

BENEFITS

Enrolment

This approach at Mira Costa has produced some startling results. The Reading Laboratory is in its third year of operation. Initially, fewer than ten per percent of the student body was enrolled—these mainly by coercion. Today twenty-five percent of the student body is enrolled, and over half of these by choice—not direction. We have many high caliber students in the Reading Improvement classes because they know they also are going to be helped individually in their areas of greatest weakness rather than be subjected to practicing skills in which they already are proficient.

Drop-outs

The drop-out rate for the low-level achiever has been cut nearly in half. This results from the fact that the average gain per student per semester is slightly over two years based on grade placement as shown by standardized tests.

Community Service

Because of the enthusiasm displayed by the students for the Reading Laboratory instruction, demands for evening classes for professional people from the community became increasingly abundant. As a result, a community service course for reading improvement is provided. These classes are comprised of doctors, dentists, military officers, the clergy, and other professional persons.

The stigma which is usually associated with a reading laboratory has been entirely dissipated. It isn't just the "dumb" students who participate in the program. Anyone who really wants to improve his skills goes to the Reading Laboratory because he knows there is no competition with peers—only with himself. The extent of improvement lies with the student, not with the instructor.

Realistic Appraisal

In addition, the student who has looked upon himself unrealistically in the past has at least the opportunity to appraise himself realistically now. The important consideration is that be begins to develop an idea of the "know-how" of reading; how to read the materials that are going to help him in his life, whether he be an auto mechanic, a plumber, an academician, or an opera singer. In our laboratory at Mira Costa it is of little concern to us that one student is learning how to read an automobile repair manual efficiently while the student next to him is learning how to read a chemistry lab manual efficiently. In either case he begins to develop an awareness of self, and he can begin to see himself in proper relationship to other people with the same problems. But more important, he begins to develop an appreciation of his own potential. He no longer is the brow-beaten student who has been assigned some ignominious label, which is probably completely meaningless anyway. If this person ultimately becomes a productive member of society, regardless of the level of achievement, instead of becoming another number on relief or prison rolls, all of the time, money, and effort that we will have put into this individual will have been well expended.

In-Service Training

Perhaps the most gratifying development of this program has been the demand from the local and surrounding elementary and high school districts to provide instruction in these techniques for teachers —not reading teachers alone—but for teachers from all the academic disciplines as well as administrators. With the cooperation of the local high school district, the Junior College administration, and San Diego State College, such a course is now being provided, and is being attended by forty people—teachers, counselors, and administrators.

SUMMARY

By no means do we intend to imply that we have all the answers. We are fully aware there are areas of weakness which exist in our program, but through conferences such as this and the exchange of ideas with others in the field, we aspire to the continuation of improvement. As the outgoing Chairman of the Board of Braniff Airways, Charles Beard, stated it: "Education should be a continuous state of constructive dissatisfaction."

If we as teachers of reading want to improve our programs, we must look upon ourselves with constructive dissatisfaction. We must inspire this attitude in our students. If we do, what we accomplish or what our students accomplish, may be expressed by this story.

A very wise philosopher many years ago was sought out by people from all stations of life with all sorts of problems because this great philosopher could always give an answer which seemed to solve the problem at hand. Some young college students, in discussing this profound philosopher, finally decided that there must be some question they could ask for which he could give no answer. After due consideration and deliberation, they finally arrived at a decision. "We will get a little bird and put it in our hand, and we will say to the wise philosopher, 'Mr. Philosopher, is this bird dead or alive?' If the philosopher says that it is dead, we will open our hand and let it fly away, but if he says that it is alive, we will crush it and kill it. We will thus have a question for which he can give no answer."

So the boys caught their bird, and they went to see the philosopher. And they said to him, "Mr. Philosopher, we think we have a problem here which you cannot solve. We have a bird in our hand, and we want you to tell us whether it is dead or whether it is alive."

And the wise philosopher, after a few moments of thought, gave the boys this answer: "It is as you will."

Use of the Computer for Testing and Programming in a Reading Program

Gilbert H. Williams
San Bernardino Valley College
San Bernardino, California

Reading programs at all levels accumulate files of data most of which are manually maintained and therefore often inaccessible. Diagnostic information, instructional followup and evaluation data are often only partially used.

As a student advances through a reading program, the increasing amount of this data further compounds the problems of accessibility. Much overlapping and duplication reside in the files and the conscience of the reading specialist concerned about maintaining sequence, continuity and individualized instruction. He bears his guilt reluctantly as the burden of data mounts.

Computer applications and a systems approach to reading programs offer a promise of reassurance to the reading specialist. Pertinent data acquired in diagnosis can be stored in a more available manner and synthesized with instructional procedures. Evaluation procedures, computer processed, assure immediate followup and control to the instructional process in addition to providing valuable research potential.

Systems approaches to the instructional program have been a natural result of efforts to develop a more efficient means of handling data. The Reading Center at San Bernardino Valley College has related computer uses to four aspects of its program: diagnosis, instruction, evaluation, and research. A systems design for the total program has been developing through the practical concerns associated with these four aspects. It should prove helpful first to offer a definition of what is meant by a systems approach to reading instruction, and then report on some specific applications of the use of the computer. Finally a comment on the direction indicated by a systems approach would be in order.

Every instructional situation is a composite of variables including the nature of the learner, the difficulty of the material, the terminal objectives of instruction, the instructional environment, the varieties of media, and the goals and policies of the educational institution.

A system is a set of well defined parameters composed of learning situations. It identifies the operations and stipulates the relationship operations hold for each other as well as their relationship to the learning objectives. These are dynamic elements, and this paper will identify the learning theories which relate to the use of these elements.

Leonard Silvern relates learning to Blooms' Taxonomy suggesting that the systems approach is an application of analysis and synthesis to an instructional program. Analysis consists of identifying, relating, separating, and limiting elements which comprise the process of breaking down a whole. Synthesis involves creating a new relationship from these elements. The strength of learning systems rests in the analysis of alternate pathways through which desired terminal objectives may be obtained. Reading data so processed can do much to facilitate individual instruction.

Systems approaches emphasize the need for clear definition of terminal objectives. These in turn shape the teaching objectives. All possible inputs of stimuli are recognized and arranged in hierarchical order. Diagnostic measures, computer stored perhaps, summarize the knowledge and skills already within the learner before training. The instructional system is built within the training achievement level of the students. These identified objectives need to be properly communicated to the student and the instructional sequence related to them.

At this point a description of the computer applications at San Bernardino Valley College should offer an example. Valley College conducts a reading program involving approximately one thousand of the college's five thousand students. The initial concern with using available data was to evaluate the reading levels and specific reading skills problems of these thousand students and program them into appropriate courses. These students were selected primarily on the basis of high school records, pre-testing, and individual interviews conducted during preregistration. The total group included students with all ranges of ability. Enrollment may be voluntary or required depending on diagnostic data and staff recommendations.

The first meeting of the class the Nelson-Denny is administered using data processing materials on mark sense cards. In the future, tests will be scored with an optical scanner using standard size scoring sheets. The answer key and standard norms to the Nelson-Denny are then programmed into the computer along with special program requests asking for supplementary data regarding the group tested. Test data and supplementary information computer processed include such information as frequency distribution, item analysis, means, medians, modes, and standard deviations. In addition, a printed student record label for each student listing percentile scores is provided. Class lists are provided with preliminary diagnostic breakdown. All of these data are available the second day of class.

Considerable instructional data are also available in the form of frequency count on each item of the test. By doing an item analysis using Blooms' *Taxonomy of Educational Objectives*, it is possible to classify types of specific comprehension problems which particular groups need. It was also noted that the test itself is somewhat limited in questions measuring cognitive skills on upper levels such as analysis and synthesis. Computer analysis of the Nelson-Denny helps identify special comprehension problems of particular individuals. Additional analysis identifies the difficulty level of certain questions and the efficiency of each item to discriminate between comprehension problems of high and low readers. An analysis of vocabulary indicates particular problems such as specific recurring prefixes and suffixes which relate to meaning. Finally the computer read-out sheets clearly reflect the apparent relationship between rate and comprehension. The final items on the comprehension section make it evident that students scoring in the upper quartile were handicapped by obvious time limitations. From this it may be concluded that rate development with upper level groups is important.

Computer applications to instruction have been numerous and most helpful. Listed below are some of the objectives the Valley College program seeks to include in its systems approach:

A COMPUTER APPLICATION FOR READING INSTRUCTION

A. Major Objectives
  1. To assure sequence and continuity in the reading program while providing current data regarding student achievement.
  2. To control and follow the student progress along the developmental reading skills sequence.
  3. To keep the teacher informed about individual progress with reading instruction.
  4. To provide a more effective means of programming students into materials and media.
  5. To assure individual student progression with the skills he needs to work on in sequence, avoiding needless repetitions or gaps in the instructional process.
  6. To have the potential of branching since the test data can indicate additional skills material available through storage in the memory banks of the computer.

Research applications of the computer have grown out of evaluation procedures at Valley College. Initially the program has attempted to recapitulate by test the progress of individuals and groups in order to evaluate the effectiveness of instruction and facilitate grading. A study is being made on correlations between various intelligence tests and reading tests administered to specific ability levels. A correlation study relating reading instruction to success in English and other content areas will continue through 1967-68. The computer has served as an invaluable tool in making these studies possible.

References to computer concepts need not lead to a distortion of primary importance of sound learning theory and its relationship to educational systems. The impact of computer technology need not represent any more overriding role than teaching machines and programmed instruction have assumed, although its potential is greater. All three constitute useful tools to the systems approach to help expand the potential of the media.

Individual differences are a basic concern of behavioral psychologists. Detailed analysis of large numbers of students in day-to-day reading skills instruction and evaluation of student progress is an insurmountable task. Computer collection, storage, and evaluation of data holds great promise for increased attention to individual problems.

Immediate reinforcement and overt correction procedures are additional learning principles which computer processing may facilitate. Suppes comments on other studies demonstrating the desirability of overt correction procedures to facilitate learning. A systems approach utilizes the computer for scoring material as a means of reducing the time between student completion of an assignment and the time when it is returned with corrections.

The use of the computer has contributed significantly to the theory of learning. A comparison of computer functions and learning functions will illustrate the problem solving similarity. Computer functions include:

1. Input of information is practiced
2. Storage of data and retention of information are achieved
3. Logic unit is brought about where calculations and decisions are carried out
4. Control is maintained, action is coordinated, and
5. The output unit gets information out of the system as a whole

In comparison, the normal problem solving process follows these steps:

1. Input—a problem is written down
2. Storage is the registering of this data in thought
3. Calculation is the solving of the problem, obtaining the answer
4. Output is writing it down
5. Control is assumed throughout the brain

The use of this computer procedure holds great promise for systems analysis of learning research and teaching effectiveness.

USES OF SIMULATION

Systems approaches to learning frequently employ simulation through use of a computer as a new segment of learning research. Simulation of behavior is a means of studying a person or animal in which the computer is used as a dynamic but controlled model of the organism. In the simulation of neural and psychological behavior, the computer can be programmed for each step of its operation, making it possible to study behavior in greater detail. In *Frontiers of Psychology*, Mann points out that this computer-aided research reveals that the nervous system operates in the manner of an information processing system. The neural system is active in the sense that it is engaged constantly in various matching procedures designed to fit in-coming signals.

Learning may be separated into three basic processes: acquisition, retention, and transfer. And systems analysis may be related to the basic learning processes of acquisition, retention, and transfer.

Acquisition means the performance is changed as a result of the learner's practice. Steps preceding practice include motivation and orientation. Systems development would indicate an organization plan employing media to point out the usefulness of what is to be learned and how it relates to post-learning. Orientation means that the learner must understand what he is to do and the processes involved. Orientation may well use TV and sound media to assure clear verbal description.

A systems approach would provide unique opportunity for use of programmed material, simulation, and special media. The learner should be given an opportunity to look at the whole task. Practice needs to be distributed with short periods of work and rest.

Programmed material provides opportunity to provide the learner with knowledge of results. Learners know how they are doing. It is important, however, that the knowledge of results be immediate. The greater the feedback, the greater the learning. Computer programming assures this feedback or suggests branching activities.

Systems application of the use of the computer offers great promise as a self-organizing element. Experiments currently going on reveal how the computer assists in getting maximum utilization of faculty skills by offering adequate diagnostic data for individual followup. The basic aspects of the computer are its speed and accuracy. Pacing of individual students and control of content become possible due to the constant feedback possible at all stages.

During the acquisition stage, programmed material can be employed as one of several resources available to the system. A record of reading skills lessons stored in a computer memory system linked to background data on the student himself assures a systematic means of distributing practice. Such linkage would allow for immediate knowledge of results as well as maintain accurate records for prompt follow-up.

A systems approach attempts to reduce the degree of similarity among the parts of the task. The difficulty and the amount of the material learner are also controlled. Interferences can be more effectively dealt with by control of the learner's developmental progression through a program.

The process of transfer is acquired through more sophisticated control. The similarity of learning situations reflects a respect for stimulus response relationships. Positive and negative transfer can be handled more systematically. Evaluation of progress in specific skills training can be computer controlled and followup drill offered at the earliest possible moment.

CONCLUSIONS

It is apparent that the use of a computer means much more than getting test results back in a hurry. The use of technology necessitates re-thinking the entire process which the reading specialist pursues in developing his program. A useful tool offering great flexibility is at the reading specialist's disposal. For those concerned about surrendering control to the monster it should be remembered that before man let the genie out of the vase man set the conditions as to how the genie would serve him.

BIBLIOGRAPHY

1. Bloom, B. S. *Taxonomy of Educational Objectives.* New York: Longmans, Green and Co., 1956.
2. Feigenbaum, E. and Feldman, G. "Computer and Thought." *Journal of Contemporary Psychology*, 1963, 7:336.
3. Gagne, Robert M. *Psychological Principles in System Development.* New York: Holt, Rinehart & Winston, 1962.
4. Mager, R. F. *Preparing Objectives for Programmed Instruction.* San Francisco: Fearon, 1962.
5. Munford, Lewis. "The Automation of Knowledge." *A V Communications Review*, 1964, 12:261.
6. Sayre, W. M. *Modeling of the Mind: Computers and Intelligence.* South Bend: University of Notre Dame Press, 1963.
7. Silvern, R. K. "Reply to Questions About Systems." *A V Communications Review*, 1965, 12:65.
8. Suppes, Patrick. *Computer-Assisted Instruction in the Schools: Potentialities, Problems, Prospects.* Stanford: Institute for Mathematical Studies in the Social Sciences, 1965.
9. Travers, Robert M. W. "The Transmission of Information To Human Receivers." *A V Communications Review*, 1964, 12:373.

Recent Research on Programmed Listening

Dee W. Henderson

Graduate School, U.S. Department of Agriculture
Washington, D.C.

Much has been written in recent years about the relationship between the reading and listening skills. In the future it is possible that more valid research will indicate a more significant correlation among all the communicative skills—reading, writing, listening, and oral communications.

During the past year within the Graduate School of the United States Department of Agriculture, the author has conducted listening improvement programs in addition to the school's efforts in improving communicative skills. More recently we have developed a communications workshop that combines all the communicative skills within one program.

Competent research has shown it is possible to raise the level of listening and reading comprehension of average persons substantially. It is also important to keep in mind the uniqueness of certain comprehension characteristics of each communicative skill as Spearitt emphasizes.[1]

In general the listening comprehension of most adults is highly inefficient. Richard Hamplemen's study found the listening comprehension of students in intermediate grades much superior to their reading comprehension.[2] Later in life adults tend to comprehend larger amounts of information through reading than listening.[3] Listening efficiency tends to decline as we become older. Nichols' studies suggest that first-graders know ninety percent of what their teachers are talking about at any given instant, and this percentage declines because of poor listening habits to forty-seven percent in junior high school and twenty-eight percent by the time a student reaches high school.[4]

According to the STEP Listening Comprehension Tests the three goals in listening are

1. Comprehension, what is the plain sense of what is heard?
2. Interpretation, what was the speaker trying to do?
   What were the implied meanings of the message?
   How does what is heard relate to other common knowledge?
3. Evaluation, what are the weaknesses and strengths of the speaker's message? How valid is the presentation when compared to common knowledge?[5]

Concerning these three goals Duker states that the area that remains neglected is the teaching of discrimination or critical listening.

"Being able to go beyond merely *what* is said is of major importance in the age of aural mass communication."[6]

Although discriminate listening is essential, it has been the findings of the Center for Modern Learning Technology at the Graduate School that a major problem in government listening is that people interpret and evaluate what a speaker has said without ever comprehending *what* is the plain sense of what has been heard. This tends to become more of a problem as the individual rises in the executive levels.

The Graduate School's listening program uses as a core the Effective Listening Program developed by Basic Systems, Incorporated. This is a programmed audio presentation for adults concerned only with listening comprehension, or the *what* of an oral message. The program was widely acclaimed by a significant poll of professional educators to be the outstanding programmed instruction course developed in 1964. It has a pre-and post-test and is approximately three and one-half hours in duration.

From the beginning of our research it was felt that the communication skills—reading, writing, listening, and oral communications—should be combined into an integral program. This relationship for adults would enhance each skill and avoid the isolationism traditionally given to them. Questions were also raised as to the effectiveness of the Basic Systems Program in this relationship of one skill to another. A small pilot study was set up and executed to explore these questions. The results of this pilot study which follows may suggest that further research is warranted and of value.

STUDY

Over 300 adults in the Federal Government from various government agencies were used as experimental subjects. They were of various age groups from eighteen to sixty and ranged in GS grade levels from five to sixteen.

The main group of approximately 200 employees took the complete listening program at the Graduate School, and they determined a normal range for the pre-and post-listening scores. The rest were divided into six groups.

Two groups took the Graduate School's Reading Improvement Programs at their own agencies; they were Labor and Office of Economic Opportunity employees. Two other groups were a mixture from many different agencies. The fifth group was another heterogeneous group involved in a Communications Workshop, and the sixth group was a control group of individuals from various agencies.

The Office of Economic Opportunity and Labor groups were given Basic System's listening pre-test after completing a reading improvement program of six weeks, twenty-four hour duration. The Communications group was given a pre-test at the beginning of a four-week, twenty-four hour program combining reading and writing and the post-test after the four weeks were completed.

The two other groups were given the listening pre-test, an oral and written evaluation of their results, and then the post-test after thirty hours of reading. The reading tests administered were both the Nelson Denny Forms A and B and Perceptual Development Laboratory Exams 1-5.

The control group took only the pre-and post-listening tests without any reading or listening instruction.

The examination of the before and after training mean difference in score for the listening students as compared to the control, communication and reading groups showed a significant improvement for those completing the programmed listening exercises. They increased approximately 55 points. Those groups which had been exposed to reading alone (Labor and Office of Economic Opportunity) scored 26 and 18 mean points, respectively, higher on the pre-test than those without reading training. The two reading groups given an oral and written evaluation of their performance on the pre-test scored 35 points higher on their post exam, while the communications group scored approximately 34 points higher on the post exam after being exposed to only reading and writing.

This would seem significant were the pre-and post-listening tests comparable. However, the control group scored approximately 18 points higher on the post-exam, indicating that possibly the post-exam is somewhat less difficult than the pre-exam.

Despite the discrepancy between the control group's achievement, those groups involved in a communications program scored a mean of 15 to 20 points higher.

Correlations that were made between listening comprehension as measured by Basic Systems pre-test and reading comprehension as measured by the Nelson Denny Form A, indicated a rank correlation of .61. This corresponds with Holmes and Singer's correlation between reading and listening rate measured by the California Auding Test.[7] The correlation between the Reading Efficiency Index of the groups as indicated by the Perceptual Development Laboratory Tests and the

TABLE

	Pre-Exam.	Post-Exam.
Typical Listening Group	28	85
Labor (Only Reading)	51.2 (after reading)	
O.E.O. (Only Reading)	42.5 (after reading)	
Communications (Reading and Writing)	15.3	49.2
Mixed Reading- (Analysis of pre-score results)	24.3	60
Mixed Reading	24.2	60.4
Control	18	36

Basic System Pre-Test on a rank correlation method was .74 which is a significant relationship. Other correlations such as G.S. rating to pre-test listening score was .63 and listening pre-test related to Nelson Denny Form A vocabulary score was only .43.

CONCLUSION

Some criticisms of this pilot study are in order. The Basic System Listening Program is primarily the tool being evaluated. Questions of why it was developed and for whom are not entirely related to this study. The Basic System portion of our program has been very effective and well received at the Graduate School. The Basic System Listening test should be correlated with other substantiated tests such as the STEP Listening Tests, the Brown Carlsen Listening Comprehension Tests, or the California Auding Test for more valid analysis.

However, it is felt that the results of this admittedly imperfect pilot study warrant further research. Until recently little thought has been given to the importance of combining within a single learning program the skills involved in the communicative process. Unfortunately, it has not yet been possible to pursue this path of research systematically. Although this is the beginning of our research it is felt that by combining and integrating reading, writing, listening, and oral communication the development of each skill will be better understood and increased over that achieved by an individual skill approach.

REFERENCES

[1] Spearitt, Donald. *Listening Comprehension: A Factional Analysis*. Melbourne, Victoria: Australian Council for Educational Research, 1962.

[2] Duker, Sam. *Listening: Reading*. New York: The Scarecrow Press, Inc., 1966, p. 157.

[3] *Ibid.*, p. 158.

[4] Nichols, Ralph. *Listening*. L65-13. Industrial War College of the Armed Forces, August, 1964, p. 26.

[5] Education Testing Service. *A Brief-Cooperative Sequential Test of Educational Progress*. Princeton, N.J., pp. 8-9.

[6] Duker, p. 171.

[7] *Ibid.*, p. 167.

A Job Corps Center Reading Program

Edward Fry

Rutgers University

This paper will have two parts. First, we will have a brief description of the Center and the Reading Program currently being conducted. Next, we will discuss some of the problems in a Job Corps Center and particularly those related to reading instruction.

Kilmer Job Corps Center is located in an abandoned Army Camp formerly known as Camp Kilmer which is about 35 miles south of New York City. Most of the buildings in the Camp are temporary barracks constructed for World War II reluctant tenants. The Camp is operated by Federal Electric Corporation with varying degrees of consultant services being supplied by Rutgers University.

The Camp was slated for a maximum capacity of 2,500 corpsmen. At present it is operating with 1,580 corpsmen. Its highest actual enrollment was around 2,100 corpsmen last spring. There are about 700 full-time employees, a few of whom, the dorm counsellors, also live in camp.

The corpsmen are young men between the ages of 16 and 21 most of whom have not completed high school. Most come from either rural or urban economically depressed areas. Initially the intake was about half white and half Negro, but lately a majority of Negro corpsmen have been enrolling. All of the boys at the camp are volunteers, though frequently they were encouraged to do so by a staff member of the U.S. Employment Service or one of their community social service workers.

There are two kinds of Job Corps Training Units. Both live in camps. The smaller conservation camps are located in forest or rural areas and theoretically have boys with lower basal academic skills who could not profit from more technical training. The urban centers have boys with better academic skills, the definition being approximately 4th-grade reading ability or better. The Kilmer Center, for example, teaches such trades as truck driving, baking, printing, and refrigeration repair.

Dr. Kling, whose paper follows, will give a more detailed description of the corpsmen's reading abilities. What I will present now is a brief description of the place and manner of reading instruction in the program that currently exists. Mr. Zelnick's paper provides a *more* detailed description of reading methods and materials used in the remedial area: *Reading in the Curriculum.*

The boys spend half a day in the academic classroom and half a day in the shops or direct vocational training. Some of the vocational training is most realistic; for example, the truck-driving school has rented various sizes of trucks from delivery vans to large over-the-road tractors and trailers.

Approximately half a class of 64 students turn up in the morning and are received by a team of 3 academic teachers, one specializing in communications which includes reading and writing, one specializing in math and science, one specializing in social studies. Thus, if the boys are divided equally each teacher would have about 11 students, and if the time were divided equally, which is not always the case, she would see these 11 students for about 45 minutes. Thus, we see that reading instruction is sandwiched in with all the communication arts, and approximately 1/6th of the students' training time is devoted to communications skills. If we assume that half the communications is devoted to reading and half to writing, speaking, and literature, we can see that approximately 1/12th or 22 minutes a day are devoted to reading instruction.

Until last summer there also existed a reading clinic which was staffed by 5 mostly competent teachers and a moderately generous assortment of equipment that included the usual remedial reading materials, programmed instructional materials, kits, tachistoscopes, tape recorders, and language masters. Remedial reading instruction in this clinic was usually done on a one-to-one basis though occasionally small groups with 3 or 4 corpsmen of similar abilities were formed. Rutgers University Reading Center had a full time staff member, Mr. Zelnick, assigned to the Camp, and he spent a majority of his time in the reading clinic. Students were referred to the clinic by teachers based on observations of need and test scores.

Unfortunately, there was no systematic use of mass testing scores in referring every student, and we felt that the Camp Reading Clinic was reaching fewer than half the students that needed remedial reading help. However, this problem was solved during the summer of 1966 when the Reading Center was closed with the explanation that there was a shortage of funds. What actually happened was that the contractor, Federal Electric Corporation, put in one renewal price to run the camp for the next 12 months' period and an additional amount for special operation such as the Reading Center. The Office of Economic Opportunity in Washington under Congressional fire to hold down Job Corps costs bought no extras. Whether or not remedial reading instruction should be part of the basic camp expenditure is a matter of emotional controversy, but the facts are that the remedial program was and is closed. At least one of the top administrators in the Camp feels that one solution to this problem is simply to exclude all boys who have below 4th-grade reading ability. This closing of the Reading Center also caused some of the teachers most skilled in the area of reading to seek employment in the public schools.

Perhaps the best way to explain what actually is happening is a brief description of observations of 4 classrooms. Two of the classrooms were recommended by the administration as being good, two others were picked at random.

Classroom No. 1: had eleven students present. They were all working hard, most of them using the Mott programmed reading materials. The instructor was preparing a special drill on synonyms. He stated that among other methods used frequently were the Learning Through Seeing Tachistoscopic Films.

Classroom No. 2: the students were using the Scott-Foresman Galaxy books. The teacher was at the blackboard explaining some arithmetic problems and noted that the math teacher was absent that day and he was taking both sections. There were about 12 students present. He stated that the materials used most frequently were the Scott-Foresman Basic Skill for High School Workbooks.

Classroom No. 3: there were 4 students present taking a test on capitalization. The teacher had written about 14 sentences on the board with no capitalization. The students were copying these, capitalizing them correctly. She stated that the reading material she used most frequently was the SRA Lab IIIa.

Classroom No. 4: the communications teacher was giving a lesson on picas which involved some mathematical computations. He evidently did not wish to be interrupted to discuss the reading program, but in evidence around the room were a number of printing publications and charts such as those naming the various shades of colored inks.

It is difficult to describe the curriculum in any one school, but Figure 1 gives a list of units from the School of Commercial Technology where printers are trained. As might be expected, this curriculum is probably a little heavier than most in punctuation and word-division skills. Most of the units under Basic English Aids refer to booklets in the Lessons for Self-Instruction series published by California Test Bureau. (CD is an upper elementary designation and EF is a junior high designation.)

FIGURE 1

CURRICULUM OUTLINE FOR THE SCHOOL OF COMMERCIAL TECHNOLOGY

UNIT I. SAFETY IN THE SHOP
1. Word List
2. General Safety Precautions
3. Fire Safety
4. Machinery
5. Chemicals
6. Eyes and Face
7. Personal Cleanliness
8. Questions
9. Projects
10. Achievement Test

UNIT II. INTRODUCTION TO OFFSET PRINTING
1. Brief History
2. Word List
3. Major Printing Processes

4. Basic Theory of Offset Printing
5. Offset Press
6. Projects-Demonstrations
7. Questions
8. Achievement Test

UNIT III. BASIC ENGLISH AIDS

1. Following Directions, C-D
2. Following Directions, E-F
3. Reading Interpretations, I)C-D
4. Reading Interpretations, II)C-D
5. Reading Interpretations, II)E-F
6. Reference Library C-D
7. Capitalization C-D
8. Sentence Patterns C-D
9. Verbs, Number & Case C.D.
10. Verbs, Number & Case E-F
11. Punctuation

UNIT IV. DIVIDING WORDS

1. Basic Principles
2. Rules
3. Prefixes and Suffixes
4. Double Consonant & Proper Nouns
5. The Hyphen
6. Achievement Test

UNIT V. PUNCTUATION FOR PRINTERS

1. Importance
2. Period and Question Mark
3. The Comma and the Exclamation Mark
4. Colon and Semicolon
5. Quotation Marks
6. Parentheses and Brackets
7. Ellipses
8. The Dash
9. Capitalization
10. Achievement Test

UNIT VI. TECHNICAL TERMS

1. Printers' Language
2. Achievement Test

UNIT VII. ABBREVIATIONS

1. Common Abbreviations
2. Dates, Figures, Footnotes
3. Cities, States, Countries
4. Achievement Test

UNIT VIII. SPECIAL MARKS OF PUNCTUATION

1. Accent Marks
2. The Asterisk, Dagger and Double Dagger
3. Dieresis
4. Achievement Test

UNIT IX. THE POINT SYSTEM

1. Schematic Drawing-Printers Inch
2. Addition
3. Subtraction
4. Multiplication
5. Division
6. Achievement Test

Readers may also be interested in the GED program (General Educational Development) which includes those students released from their regular academic classes who come to study for a high school equivalency examination. This program contains about 100 students, and the GED teachers are quite proud of the fact that over 70% who are allowed to sit for these examinations pass it. The communications course of study is very heavily loaded with traditional grammar. In Figure 2 I have included two of the units to illustrate this point and also included the one unit devoted exclusively to reading. Eleven of the fourteen units are grammar, 1 unit reading, 1 vocabulary building, and 1 spelling.

FIGURE 2

COURSE OF STUDY FOR HIGH SCHOOL EQUIVALENCY PROGRAM

COMMUNICATIONS

UNIT 1

Lesson 1	Nouns
Lesson 2	Pronouns
Lesson 3	Verbs (action and linking)
Lesson 4	Verbs (helping)
Lesson 5	Direct and Indirect Objects
Lesson 6	Subject Complements

UNIT 7

Lesson 1	Adverb clause
Lesson 2	Adjective clause
Lesson 3	Use of who - whom
Lesson 4	Use of who - which - that
Lesson 5	Using 'ing' word groups (participles and gerunds)
Lesson 6	Use of appositives

UNIT 12

Lesson 1	Central theme
Lesson 2	Statement vs. inference
Lesson 3	Fact vs. propaganda
Lesson 4	Implications
Lesson 5	Author's intention
Lesson 6	Points of view
Lesson 7	Main idea of a paragraph
Lesson 8	Figures of speech
Lesson 9	Titles

Though the Job Corps opened with pronouncements by many including most of the administrators that there were very few suitable commercial materials available for the teaching of reading for this type of young man, it appears that there are indeed many materials. Mr. Zelnick's paper provides lists of more reading materials than any group of teachers could possibly use.

Another early pronouncement was that since these boys had failed in school, the teaching-learning situation should be radically new and unlike the public schools which directly or indirectly were blamed for their failure. It has been our observation that the Job Corps has become progressively more like the public schools. For example, the training has been reorganized into a "schools approach" with a chief administrator who, for all practical purposes, resembles a "principal." The teachers who were first enjoined chiefly to be creative and empathetic are now encouraged to hold regular lessons and in many instances even provide lesson plans or outlines of objectives that they wish to accomplish. Congress, which at first lavished money on the Job Corps because it was a "War on Poverty," soon began to examine the cost of the "War" and has now come to the realization that it costs about twelve times as much to keep a boy in the Job Corps as it does in the public schools. It would be unquestionably disconcerting to an average taxpayer to walk down the halls of nearby Edison High School and look at the number of students working compared with the total attendance, and then walk down the halls of the Job Corps camp and observe the number of students working compared with the total attendance. The public schools have an incomparably higher attendance rate, and it is my opinion that the utilization of their time is much more effective.

Of course, there is always the possibility that by taking students out of their environment some new and magical change takes place. It is yet to be demonstrated, however, that these boys do not return to essentially the same environment from which they left. Unfortunately, there is a political controversy raging as to whether or not War on Poverty funds should be given to community action projects which keep the boys at home or to the Job Corps which removes them to distant living centers. It is, however, safe to say that if you took the average school superintendent or high school principal and told him that instead of $600 a year to spend on this type of student, he could now have $12,000 per year, I suspect that he would provide a very different type of school situation from the one reputed to have "caused" the student to drop out of school.

Dropouts are usually caused by many factors of which the school environment is only one. Incidentally, the Job Corps also has a high dropout rate. There are no published figures, but some observers believe it to be in excess of 50% during a six-months training period. The U.S. high schools have about a 13% dropout rate over 4 years. Job Corps rural whites have a higher dropout rate than urban negroes.

Another problem faced by this and other Job Corps centers is the constant change. One can hardly expect an organization which almost literally went into business yesterday to have long standing and stable traditions or organizational patterns, but constant major changes can hardly help any organization. This change-orientation derives from the very top. Directives and consultations from the Washington office seem to veer sharply sometimes at right angles from each other over a six-months period. Since many of the administrators involved in the program have skills only as administrators and not as educators, they are constantly tinkering with the administrative structure in some naive belief that by sorting their problems into different piles, they will somehow be solved. This constant reorganization, and in some instances, lack of organization, is one of the chief causes for high staff turnover. New faces on the staff aggravate the already existing problem of more changing organization.

How to spend money is also a major problem. Camp Kilmer was given in excess of $12 million dollars to spend over an 18-month period. The greatest number of students the Camp had at any one time was 2,100, and the average daily attendance over this period was something under a thousand. Thus we saw such phenomena as a curriculum development division headed by an administrator inexperienced in curriculum development which contained three artist draftsmen for preparing novel audio-visual materials and posters, four writers and editors, and several other secretaries and junior administrators. We saw a fine arts department which had several full-time artists in residence and several part-time art instructors—this for a population whose average IQ was 80. The physical education program contained ex-major league baseball stars and the public relations department staffed by most competent professionals, including a full-time photographer. These are some of the little luxuries which the average high school cannot afford.

Finally, we come to the problem of university relationships, with a business organization running an educational institution. This strange amalgam was partially brought on by a philosophy stemming from some Washington officials that the public schools had failed and were otherwise inadequate, that private enterprise, more specifically defense contractors, especially those with demonstrated ability in handling complex technological products, could somehow show the nation and the schools how these boys really should be educated.

The first impressive fact was that private enterprise could throw raw manpower into writing a proposal. This organization geared to writing government proposals in a course of three weeks had several hundred-page documents listing the total number of spoons needed and a pat curriculum organization.

Initially, the contractors gave the university consultants a relatively free hand in setting up the curriculum and ordering materials. But just as soon as they developed their own in-house staff, which was frequently composed of educators hired by newspaper advertisements, they began to resist university consultants' suggestions. An early major battle was to keep them from sending back commercially ordered reading material, and it was only by dint of the sound argument that they should keep them until they had developed their own materials, because boys were arriving in several weeks, that we managed to prevent everything from being sent back. Needless to say, in the course of the next two years, they did not develop very many curriculum materials, and today rely very heavily on commercially prepared materials.

We cannot say that the university was a "white angel" during all of the development of the Job Corps relationships. Some of the consultants were worse than useless and succeeded in making roundhouse criticisms having nothing to do with their specialties. Perhaps this report falls somewhat into that category. There was at least one serious breach of ethics when a report intended for the management was somehow "leaked" to *The New York Times.*

At the present time, the university is considering severing all relationship with the Job Corps, and from the standpoint of many Job Corps officials this will not be an unmixed blessing.

From the standpoint of reading, I feel we have learned several things:

1) A lot of money will not rapidly cure reading problems.
2) It is very hard to develop reading curriculum materials.
3) There is a lot of good commercially available materials.
4) The public schools aren't so ineffectual as supposed.
5) The best teachers were experienced teachers with interest in this segment of the population.
6) A limited amount of materials can be especially developed for this type of child.
7) Even with selection tests which purport to screen out remedial readers, a reading clinic was still necessary.

Reading and Basic Subject Matter Achievement of Job Corps Urban Center Trainees

Martin Kling
Rutgers University

INTRODUCTION

This study was concerned with the description and evaluation of the educational achievement of Job Corps trainees at Camp Kilmer, a residential urban center established in February 1965 under Title I Youth Programs, Economic Opportunity Act, 1964, passed by the 89th Congress of the United States of America.

Specifically, the study attempted to answer the following question: What gains were registered in reading, arithmetic and language over a three-month period for Job Corps trainees at Camp Kilmer?

RELATED LITERATURE

Since Job Corps trainees are by definition disadvantaged youth the related literature was reviewed under this topic.

The most significant critical review of the extant literature in the field of the disadvantaged appeared in the December 1965 issue of the *Review of Educational Research* by Gordon (9), Grotberg (11), Karp and Sigel (17), Raph (23) and Wilkerson (25).

Two books containing compilations of studies and essays on the disadvantaged child and adult were published in 1966. Frost and Hawkes (6) dealt with the disadvantaged child and cited 345 references. Lanning and Many (20) focused on disadvantaged adults.

The United States Department of Labor (24) issued a critical annotated bibliography of research on unemployment and retraining. Barlow (1) and his co-workers in the Sixty-fourth Yearbook of the National Society for the Study of Education examined the social, economic, governmental, and technological aspects of vocational education.

Peterson (22) reported one of the early efforts by the State of California to evaluate the concept of trainee camps for unemployed youth. Some 118 references were cited as part of the literature search on youth training camps, especially those that were concerned with the CCC (Civilian Conservation Corps) programs of the 1930's.

Griess (10) attempted to detail efforts at selecting trainees for a pre-occupational training program.

Bloom, Davis and Hess (3) provided excellent summaries of what is known about the culturally deprived from an educational point of view and presented 108 detailed annotated references of basic research in the field of the disadvantaged.

However, from the available literature, it is apparent that no previous study has been concerned with basic subject-matter achievement of disadvantaged youth enrolled in a residential academic and vocational training program such as the Job Corps.

THE STUDY

In order to qualify for the Job Corps residential training programs enrollees had to be: a) 16-21 years old; b) citizens and/or permanent residents of the United States; c) school dropouts for three months or more; d) unable to hold an "adequate" job; d) underprivileged from having grown up in impoverished surroundings; e) in need of a change of environment in order to become useful and productive citizens.

Table 1 gives a comparison of the general characteristics of the Camp Kilmer Corpsmen with information available for corpsmen around the country.

TABLE 1

Comparison of Characteristics of Kilmer Corpsmen with Corpsmen Throughout the United States

Characteristic	Kilmer Mean* N = 394	U.S.A. Mean** N = 10,000
Chronological Age	19.0	17.5
Grade Completed	9.0	8.5
Reading Level	7.6	5.0
Language Level	7.0	5.0
Arithmetic Level	7.6	5.0
Percent who never held a steady job	90.0	90.0

* Based on data calculated for this study.

** Based on a circular entitled "Job Corps Facts" published by Office of Economic Opportunity, Public Affairs, Washington, D.C., (2: 2)

It is apparent from Table 1 that the mean age of the Kilmer Corpsmen was about 1½ years greater than that for corpsmen for the entire country. The Kilmer Corpsmen have also completed an average of a half year more of schooling. With respect to basic subject matter achievement they were on the average 2-2½ years above the corpsmen tested throughout the Job Corps centers. However, the Kilmer Corpsman is as much at a disadvantage as his national counterpart with respect to holding down a job.

One reason for the Kilmer trainees' consistently higher showing in subject-matter achievement may be that the data for the 10,000 corpsmen around the country were not analyzed according to whether the trainees were from conservation or urban centers. A second reason for achievement differences may be that differences in tests existed when achievement was measured. The Kilmer Corpsmen were evaluated by the California Achievement Test, whereas the test (s) used for the national survey is not given. Reports from various administrators indicate that the Stanford Achievement was to be used.

From an original group of 1,100 who were initially tested in March 1966, only 394 corpsmen were available to take retests in July 1966—a survival rate of 35.5%. It is not known whether there are any differences between the sample that survived and those who dropped out of the study. It is those who were present for both tests who constituted the group that was studied.

The Complete Battery of the Junior High Level, California Achievement Tests for Grades 7, 8, 9 was administered by counsellors and teachers trained to give the test battery.* Form X was administered in March 1966 and Form Y was given in July 1966.

That the responses on the answer sheets for both forms appear to be answered to the best of the respondent's abilities is indicated in Table 2.

TABLE 2

Comparison of Chance Level Scores for Pre-Tests and Post-Tests on California Achievement Test Battery for Camp Kilmer Trainees

N—394

Test	Total Possible Raw Score	Chance Level Raw Score	Chance Grade Score	Pre-Test Chance Level Raw Score	Per Cent	Post-Tests No. Chance Level Scores	Per Cent
1. Reading Vocabulary	60	15	4.2	43	10.9	30	7.6
2. Reading Comprehension	86	22	5.0	12	3.0	25	6.3
3. Arithmetic Reasoning	55	11	5.3	6	1.5	8	2.0
4. Arithmetic Fundamentals	80	16	5.6	9	2.3	8	2.0
5. Mechanics of English	99	20	3.0	8	2.0	3	0.8
6. Spelling	30	6	4.8	28	7.1	36	9.1

The two tests with the highest chance level scores were Reading Vocabulary which appeared at the beginning of the test battery and Spelling which came at the end of the test battery. It is notable that the Vocabulary Reading and the Spelling were the two shortest tests. The Reading Vocabulary contained four 2-minute sections and the Spelling test was given in ten minutes.

Wrightstone (26) noted that minority groups and lower socio-economic levels work rapidly and randomly when speed is required.

---

* The perseverance, integrity and administrative ability of Mr. Larry Perr, then Supervisor of Testing and now Operations Analyst at Camp Kilmer is gratefully acknowledged.

apparently to extricate themselves from an unacceptable situation, and this condition may be reflected in the unreliability of these tests.

The following analysis may be of interest:

1. Only two cases received chance level scores for the entire pre-tests, and only one case achieved chance level scores for the entire post-test.
2. Except for the Reading Vocabulary and Spelling tests, the remaining four tests on the California Achievement Test Battery were within range of expected chance level scores in terms of the standard deviations of the tests.
3. A check of the answers on the distractors chosen indicate that choices were not chance but deliberate, often approaching the distractor closest to the correct answer rather than the incorrect possibility.

In summary, the data strongly suggest that the pre-test and post-test scores were essentially indicators of the integrity of the efforts of the subjects taking the California Achievement Tests.

RESULTS

The assumption made was that improvement, if any, would be due to the Camp Kilmer Job Corps training program in the basic subjects.

Table 3 presents the pre-test and post-test results for the 394 Camp Kilmer trainees.

TABLE 3

Comparison of Means, Standard Deviations and Standard Errors on California Achievement Test for Pre-Test and Post-Test Sample of Camp Kilmer Trainees Over a Three-Month Interval

N=394

Test	Pre-test 3/66 Grade Level			Post-test 6/66 Grade Level			r bet. 3/66 6/66	Significance*
	Mean	S.D.	S.E.	Mean	S.D.	S.E.		
1. Reading Vocabulary	6.9	1.9	.06	7.1	1.9	.06	.80	NS**
2. Reading Comprehension	7.6	1.[illegible]	.06	7.7	1.8	.07	.78	NS
3. Arithmetic Reasoning	7.7	1.4	.04	7.8	1.6	.04	.74	NS
4. Arithmetic Fundamentals	7.5	1.2	.07	7.7	1.7	.08	.80	NS
5. Mechanics of English	6.7	1.3	.08	6.9	1.3	.08	.77	NS
6. Spelling	7.3	1.8	.03	7.3	1.8	.03	.72	NS

* Significance of the difference computed by using correlated means formula: See Garrett (7)

** Not significant at either the 5% or 1% level.

From Table 3 the following inferences seem warranted:

1. That this sample of Job Corps trainees is essentially functioning at the beginning of the junior high school level in reading, arithmetic, and language.
2. That there are no statistically significant changes over a three-month period for any one of reading, arithmetic, or language.

3. That the means are stable as indicated by the relatively small standard errors on the pre-tests and post-tests.

DISCUSSION

The fact that there were no statistically significant differences in reading, arithmetic, and language achievement for Job Corps trainees over a three-month period may be considered as a function of reading expectancy. The reading expectancy formula used and empirically validated by Bond and Clymer, cited in Bond and Tinker (4:76-81), appeared to be appropriate for determining what reading level might be expected for a given group. The reading expectancy formula is computed by multiplying school grade completed by I.Q. and the addition of 1.0. Intelligence Quotient is assumed to be an index of learning rate in reading. The number of grades completed was 9.0. The I.Q.* obtained on three separate samplings of 100 corpsmen totaling 300 on the Thorndike-Lorge Intelligence Tests was 80 for all three testings. Grade 1.0 is added because the grade score is 1.0 when a corpsmen enters the public school. Inserting these figures in the formula for reading expectancy, we obtain (9.0 × .80 + 1.0) or 8.2.

The Reading Comprehension level was 7.6. Therefore, under the most ideal conditions only .6 of a grade gain could be expected.

The theoretical implications of this finding appear to be consistent with Bloom's (2:110) extrapolated estimates of indices of achievement development.

Table 4 summarizes the percentages of expected achievement from the chronological age of 0 until 18.

TABLE 4*
Estimates of Achievement in Basic School Subjects From 0-18 Years

Chronological Age	School Level	Per Cent for Each Period	Cumulative Per Cent
0-4	Pre-school	16	16
4-6	Nursery, K-1	17	33
6-9	1-3	17	50
9-13	3-7	25	75
13-18	7-12	25	100

* Adapted and reconstructed from data and generalizations cited by Bloom (2).

The practical implications of Table 4 may be that nineteen years may be too old for compensatory intervention. Indeed, nineteen months may be more appropriate!

---

* Personal communication from Dr. William Bingham, Graduate School of Education, Rutgers - The State University, New Brunswick, New Jersey.

Further, the learning or unlearning of these school subjects may be to a great extent not too readily reversible, Bloom (2:3).

Can a disadvantage at one period of life be compensated for by training at a later period? Bloom (2:4) suggests that if the deficits are incurred over a long period of time and occur relatively early, the effective possibility of overcoming these deficits is for all practical purposes difficult to make up. However, a deficit over a short period may be almost fully remedied at a later time.

LIMITATIONS

Several limitations of this study are recognized which because of time, administrative decisions, budgetary considerations, or state of knowledge could not be taken into account. Some of these limitations are as follows:

1. Period of time may have been too short in spite of the a priori reading expectancy formula. This formula is at best an approximation and suggestive rather than definitive. Intelligence Quotient is not necessarily a general index of rate of learning nor is it a specific predictor of rate of learning of particular subject matter. Certainly, more basic knowledge has to be acquired about individual and group rates of learning. Jensen's (16) work is promising in this area.
2. It may also be that basic subject-matter areas were perceived by the corpsmen as incidental to vocational training, although three hours a day for five days a week were devoted specifically to the academic subjects.
3. No detailed descriptions were available for classroom activities.
4. The expectancies arrived at by Bloom are based on traditional curricula for typical students in the public schools. In addition, Bloom makes the assumption that the ceiling for achievement in basic subject matter areas is eighteen. In today's technological society, traditional curricula and methods need to be questioned and re-evaluated for immediate, intermediate, and long-range goals for various populations.

SUGGESTED RESEARCH

1. Item analyses to determine which of the 410 items discriminate.
2. More controlled studies on teaching methods, materials, and student-teacher interaction are needed.
3. Longitudinal data needed for these kinds of disadvantaged youth.
4. A theoretical formulation needed for developing approaches in the area of compensatory training. The dynamics of the nature-nurture nexus and interacting systems of the vocational and academic areas need to be explored. Two frames of reference suggest themselves, a conceptual model, a Functional Job Analysis

outlined by Fine (5) and the General Open Systems Theory delineated by Kling (18, 19). An extension of General Open Systems Theory and the Substrata-Factor Theory, Holmes (12, 13), Holmes and Singer (14, 15) is further developed and extended to Information Theory by Geyer (8).

REFERENCES

1. Barlow, Melvin L. (Ed.), *Vocational Education, The Sixty-Fourth Yearbook of the National Society for the Study of Education*. Chicago: The University of Chicago Press, 1965.
2. **Bloom, Benjamin S.** *Stability and Change in Human Characteristics*, New York: John Wiley and Sons, 1964.
3. **Bloom, Benjamin S., Allison Davis, Robert Hess.** *Compensatory Education for Cultural Deprivation*, New York: Holt, Rinehart and Winston, 1965.
4. Bond, Guy L., Theodore Clymer, Cited by Bond, Guy L., Miles, Tinker, *Reading Difficulties: Their Diagnosis and Correction*, New York: Appleton-Century-Crofts, 1957, pp. 76-81.
5. **Fine, S. A.** *The Nature of Automated Jobs and Their Educational and Training Requirements*, McLean, Virginia: Human Sciences Research, June 1964.
6. Frost, Joe L., Glenn R. Hawkes, (eds.), *The Disadvantaged Child*, Boston: Houghton Mifflin, 1966.
7. **Garrett, Henry E.** *Statistics in Psychology and Education*, New York: Longmans, Green, 1958.
8. **Geyer, John Jacob.** *Perceptual Systems in Reading: A Temporal Eye-Voice Span Constant*, Unpublished Ph.D. dissertation, University of California, Berkeley, 1966.
9. **Gordon, Edmund W.** "Characteristics of Socially Disadvantaged Children," *Review of Educational Research*, 1965, 35, No. 5, 377-388.
10. **Griess, Jerald A.** *Selection of Trainees for a Twelve-Week Pre-Occupational Basic Education Program*, Unpublished Ed.D. dissertation, the Pennsylvania State University, 1966.
11. **Grotberg, Edith H.** "Learning Disabilities and Remediation in Disadvantaged Children," *Review of Educational Research*, 1965, 35, No. 5, 413-425.
12. **Holmes, Jack A.** "The Brain and the Reading Process," In *Claremont College Reading Conference, Twenty-second Yearbook*. Claremont, California, Claremont College Curriculum Laboratory, 1957, pp. 49-67.
13. **Holmes, Jack A.** "Basic Assumptions Underlying the Substrata-Factor Theory," *Reading Research Quarterly*, 1965, 1, No. 1, 5-28.
14. **Holmes, Jack A., Harry Singer.** "Theoretical Models and Trends Toward More Basic Research in Reading," *Review of Educational Research*, 1964, 34 No. 2, 127-155.
15. **Holmes, Jack A., Harry Singer.** *Speed and Power in Reading in High School*, United States Department of Health, Education and Welfare, Office of Education, Bureau of Educational Research and Development, Superintendent of Documents, Catalog No. FS5.230:30016, United States Government Printing Office, Washington, D.C., 20402, 1966.
16. **Jensen, Arthur R.** "Learning Ability in Retarded, Average and Gifted Children," *Merrill-Palmer*, 1963, 9, No. 2, 123-140.
17. **Karp, Joan M. Irving Sigel.** "Psychoeducational, Appraisal of Disadvantaged Children," *Review of Educational Research*, 1965, 35, No. 5, 401-412.
18. **Kling, Martin.** *Description and Recommendations Concerning Reading, Communications and Vocational Training*, Unpublished Memo, New Brunswick, N.J., September 1965.
19. **Kling, Martin.** "General Open Systems Theory and the Substrata-Factor Theory of Reading." In Albert J. Kingston (ed.), *Institute V: Use of Theoretical Models in Research*, Newark, Delaware, International Reading Association, 1966, pp. 79-123.
20. **Lanning, Frank W., Wesley A. Many.** *Basic Education for the Disadvantaged Adult: Theory and Practice*, Boston: Houghton-Mifflin, 1966.

21. Office of Economic Opportunity. "Job Corps Facts," Public Affairs, Washington, D.C., 1965, pp. 1-5.
22. Peterson, Gertrude D. *An Evaluation of the Concept of Trainee Camps for Unemployed Youth,* Menlo Park, California, Stanford Research Institute Project I-5504, June 1965.
23. Ralph, Jane Beasley. "Language Development in Socially Disadvantaged Children," *Review of Educational Research,* 1965, 35, No. 5, 389-400.
24. United States Department of Labor, *Unemployment and Retraining: An Annotated Bibliography of Research,* Office of Manpower, Automation and Training, Washington, D.C., pp. 1-31, November, 1965.
25. Wilkerson, Doxey A. "Programs and Practices in Compensatory Education for Disadvantaged Children," *"Review of Educational Research,* 1965, 35, No. 5, 426-440.
26. Wrightstone, J. Wayne. "Relation of Testing Programs to Teaching and Learning." In Warren G. Findley (ed.), *The Impact and Improvement of School Testing Programs, The Sixty-Second Yearbook of the National Society for the Study of Education, Part II,* Chicago: University of Chicago Press, 1963, pp. 45-61.

Methods and Materials in a Job Corps Remedial Reading Program

Joseph Zelnick

South Brunswick Schools
South Brunswick, New Jersey

The administrators for Federal Electric Corporation, the prime contractor for the Kilmer Job Corps Training Center, initially felt that a remedial program, as suggested by the Rutgers University consultants, would not be necessary. Pre-induction screening, it was stated, would identify all enrollees who could not achieve a fifth-grade reading level. These boys would be sent to rural Job Corps Camps for upgrading of basic skills, after which they could transfer to urban centers in order to receive training in vocational fields of their choice.

With the arrival of the first group of a hundred boys in February 1965, it became apparent that the initial screening was not accurate. Kilmer was receiving boys with little or no reading ability. Immediately a reading clinic had to be established for the purpose of providing instruction for severely retarded readers.

Two problems had to be faced in setting up such an operation. First, the language arts teachers, many of whom had little or no prior teaching experience, could not readily identify those corpsmen who were below the fifth-grade reading level (the minimum established for Kilmer). Second, there was only one instructor who had enough previous training and experience to function as a special reading teacher. Fortunately there was no dearth of instructional materials. Prior to the opening of the Kilmer Center, Rutgers reading consultants had submitted a list of needs which included tests, reading texts, workbooks, periodicals, and audio-visual aids on a wide range of reading levels. These were available when instruction began.

The first problem was handled through the implementation of an in-service course for the regular classroom teachers. In these sessions the teachers were acquainted with the basic concepts of reading instruction: formal and informal testing procedures, the elements of a directed reading lesson, and techniques for teaching specific skills. A large variety of reading materials, texts, workbooks, specially prepared materials, and audio-visual aids were introduced and demonstrated.

A screening device which proved to be very helpful in the program was the Oral Reading Paragraphs developed by Dr. Fry. These are short paragraphs which enable a teacher to determine instructional and frustrational reading levels from Grades One through Seven. Since they measure oral reading ability only, these paragraphs could be easily administered by the classroom instructor. Poor readers as well as good readers could be quickly identified. In addition, each instructor could do initial screening for both the classroom reading program and the remedial reading program. Through the use of these paragraphs, instructors were able to set up instructional groups within the classroom.

The second problem, that of acquiring remedial reading instructors, was effected through on-the-job training. Three instructors who had some experience in elementary education and special education volunteered to transfer from the classroom to the Reading Center, the name given to the remedial reading operation. While working with students, these instructors were supervised in diagnostic and instructional techniques. In-service sessions were conducted during lunch periods, at the end of the working day, and as problems arose.

The remedial reading program was initially launched around a core of commercially prepared materials. The SRA Laboratories and the Webster Classroom Reading Clinic provided short selections which could be used to teach various basic skills. A culling procedure had to be instituted because not all of these materials were geared to the interest levels of the corpsmen.

Other multilevel materials which were used successfully included the *McCall-Crabbs Standard Test Lessons in Reading* and the *Reader's Digest Readings: English as a Second Language*. The lower level books of this Reader's Digest Series revolve around basic vocabularies of from 500 to 1,000 words.

Programmed materials were valuable aids in teaching retarded readers. *Programmed Reading*, a constructed-response program, was used with beginning readers. It was replaced with *Programmed Reading for Adults* when that series became available. *Lessons for Self-Instruction* (California Test Bureau) were also used. These are scrambled books in reading, grammar, and mathematics. As in the case of many other materials in the Reading Center, the use of programmed materials had to be modified to meet the particular needs of a learner or special situation.

Three types of audio-visual materials received regular use in the remedial reading program. The first of these is the Language Master, a modified tape recorder which utilizes special taped cards. A word or phrase is written or printed on the upper part of the card. The taped part is used to record and "say" that word or phrase when the card is inserted in the machine. The tape has two tracks, one for the instructor and one for the student. Thus the student is able to compare the instructor's pronunciation with his own. Words placed on the Language Master Cards include Instant Words, words collected from students' reading materials, and words and phrases taken from job application blanks, trade manuals, and special vocabulary lists prepared by vocational instructors.

Tachistoscopic filmstrips such as Instant Words, Instant Word Phrases, and phonics, published by Learning through Seeing, were also used regularly.

The tape recorder was a helpful instructional aid. Through its use students could hear correct word pronunciation and phrasing as they listened to selections taped by instructors. They could, with the aid of the instructor, evaluate their own reading performances. On occasion they read along silently while the tape recorder was "orally" reading a selection. Other uses of the tape recorder included the dictation of questions to be answered and directions to be followed.

No single piece of material or group of materials could function as a complete program or panacea for reading disabilities. As the remedial reading program expanded, as new problems arose, and as the staff became more knowledgeable, new and different techniques were used and developed.

Application blanks procured from business and industrial firms in the area were used in the teaching of basic sight words, vocabulary improvement, and spelling improvement. The vocational vocabulary lists provided the basis for lessons in phonics, structural analysis, and spelling. Word analysis generalizations can be applied to such cooking terms as cake, fat, batter, icing, and spare ribs as easily as words of a more general nature. Road signs, labels from paint cans, vocational manuals and driver manuals were used to teach word recognition, vocabulary improvement, and comprehension.

Adapted stories from newspapers and magazines, and experience stories dictated or written by students, were also used for reading instruction. Comprehension exercises utilizing the cloze technique were prepared with paragraphs taken from a variety of sources—vocational texts and manuals, stories and informative articles. (Briefly, the cloze technique is a deletion pattern for testing or teaching reading comprehension. Certain words are taken out of a passage and replaced with blanks of equal size. The student's task is to fill in the correct word). The deletion pattern could be one where every fifth or tenth word is removed or content words are taken out randomly.

Alternative methods were used in preparing cloze exercises. One was to insert a blank where a word was removed and have the student fill in the blank. Another method was to supply two choices of words beneath the blank, one of which was the correct word.

In general, remedial reading instruction at Kilmer was conducted with small groups (2 to 4 students) or on an individual basis, very seldom with groups of more than 6 or 7 students. The staff of the Reading Center discussed reports of literacy programs which were conducted with groups of 15 to 25 students. We found, however, that for specialized instruction, groups of more than six became unwieldy and individual needs had to be sacrificed. Instructional efficiency was hindered because instructors had spread themselves too thin.

Individual techniques for beginning readers included modifications of the Fernald method. With many students all of the steps of this method proved to be too slow and laborious. One such modification which could be used with small groups as well as individuals was the visual-motor method. This technique, which is helpful in the learning of non-phonetic words, eliminates the tracing steps of the Fernald method.

Another adaptation of the Fernald technique as reported by J. Louis Cooper in *Reading and Inquiry: Proceedings of the Annual Convention, 1965,* International Reading Association, proved to be very useful. This technique involves the use of basal reading materials. Those words in the book which the student cannot read are first identified. They are taught to the student as they come up in the reading of the text. With this approach the student is able to proceed rapidly through earlier books where he knows many of the words. Phonics and other word analysis skills are taught from an analytic approach as they are needed. The student acquires a feeling of accomplishment since he sees himself moving along in a book with some degree of speed.

No single method or group of methods proved to be satisfactory for all students. A variety of techniques had to be developed and an assortment of materials had to be used. Some students could learn words with the visual method. Others could use phonics analysis. Some had to use techniques which utilized multi-sensory approaches. For these reasons, instruction had to be mainly confined to small groups.

Although the remedial reading program at the Kilmer Job Corps Center encompassed a wide range of methods and materials, instruction was based on certain principles:

1. Diagnosis is important. Fnd out where the student is and exactly what is wrong. Remedial help cannot be effective if a correct diagnosis is not made.
2. Begin where the student is. Initial success is important, and repetition of earlier failures and frustrations can be avoided if appropriate materials are used.
3. Set realistic goals. Older pupils with reading disabilities may not reach their potential, but they can improve. Therefore, improvement rather than any particular grade level becomes the goal.
4. Evaluation is important. An effective instructional program must incorporate careful planning, and this includes teaching, testing, and re-teaching.

Attached to this report is a partial list of materials which were used in the remedial reading program at Kilmer. While not all of them met with equal success, the list may be helpful in selecting materials for a remedial reading program.

REMEDIAL READING MATERIALS FOR YOUTH AND ADULTS

Books and Workbooks for Beginning Readers

Buchanan, Cynthia D. *Programmed Reading for Adults*. New York: McGraw-Hill Book, 1966. Basic literacy program for adult illiterates. This linear program begins number identification and formation and proceeds to capital letters, small letters, phonetically regular words. Books 1 to 6 enable the student to reach the upper primary reading level.

Cass, Angelica. *Everyday English and Basic Word List for Adults*. New York: Noble and Noble, 1964. List of "essential" English words arranged schematically in in units or lessons.

Chapman, Byron E. and Schulz, Louis. *Mott Basic Language Skills Program*. Chicago: Allied Education Council, 1965. A full language arts program for adults with an emphasis on reading skills. The four basic texts range from beginning reading through secondary reading level. Supplemental materials are available which include books of general interest as well as vocational reading materials. Teachers' manual includes sections on how to teach reading and diagnose reading difficulties in addition to word lists and a graded reading bibliography.

Geake, Robert, and Smith, Donald. *Visual Tracking*. Ann Arbor, Michigan: Ann Arbor Publishers, 1962. A "self-instruction" workbook, designed to aid in the development of perceptual skills. Using the alphabet as a model, exercises emphasize discrimination among letters of decreasing size. Can be used with child or adult beginners in remedial work.

Laubach, Frank C. *Building Your Language Power*. Programmed by William C. Wolf, Morristown, N.J., Silver Burdett, 1965. Adult literacy program consisting of six graded books. Based on the "Each One Teach One" system originally developed by Frank Laubach. Like the earlier Laubach program, the current materials use a strong phonics approach.

Reader's Digest Adult Readers. Pleasantville, N.Y.: Reader's Digest Services, Educational Division, 1964. Twelve different titles in three reading levels, Grades 1 through 4.

Robertson, M. S. *Adult Reader*. Austin, Texas: Steck-Vaughn, 1964. A reading work-textbook for teaching adult beginners to read. A variety of topics is presented in short selections. Sight-word approach is utilized in presenting new words. Exercises include word recognition, handwriting and comprehension. The total vocabulary consists of approximately 450 words most frequently used by adults.

Steps to Learning (Books 1 and 2). Austin, Texas: Steck-Vaughn, 1965. Work-texts for adults in beginning reading and writing. Reading exercises start with auditory and visual discrimination; sight words, phonics, and structural analysis are integrated with short, illustrated reading selections. Simple writing exercises and lessons in beginning arithmetic. Book 1 contains a total vocabulary of 302 words. 276 new words are added in Book 2.

Woolman, Myron. *Reading in High Gear*. Chicago: Science Research Associates, 1964. The "Accelerated Progressive Choice" reading program designed for culturally disadvantaged learners or slow learners. Since it starts with beginning readers, it can be used with non-readers. The program progresses to 8th grade reading level in Word Attack Skills. Perceptual training receives emphasis in the first part of the program.

Elementary Level Books and Workbooks (Reading Levels 2-6)

Allen, Virginia F., et al. *Reader's Digest Readings*. English as a second language. Pleasantville, N.Y.: Reader's Digest Educational Services, 1964. Series of six books written for students of English as a second language. Controlled vocabularies make these books suitable for basic education programs.

Coleman, James, et al. *The Deep Sea Adventure Series*. San Francisco: Harr Wagner Publishing, 1959. Eight books ranging in reading levels from 1.8 to 5.0. Each story is a different adventure of Don and his diving boat crew. These books have been used successfully with young adults as well as children. The vocabulary in each book is carefully controlled, and each book contains review exercises.

Lerner, Lillian and Moller, Margaret. *Vocational Reading Series*. Chicago: Follett Publishing, 1965. Vocationally oriented stories of interest to teen-agers. While dealing with problems of young adults, each story brings out general and technical information about a vocation. Titles include: *Marie Perrone, Practical Nurse; The Delso Sisters, Beauticians; John Leverson, Auto Mechanic; The Millers and Willie B., Butcher, Baker, Chef*. Reading levels 4-6.

Lessons for Self-Instruction in Basic Skills. Monterey, Cal.: California Test Bureau, 1963, 1965. Multi-level programs utilizing the branching principles of programmed instruction. Published in booklets about 120 pages in length, each booklet focusing on a particular aspect of reading comprehension, reference skills, mechanics of English, and arithmetic skills. Programs range from 3rd to 9th grade levels in difficulty.

McCall, William A., and Crabbs, L. M. *McCall-Crabbs Standard Test Lessons in Reading* (revised). New York: Bureau of Publication, Teachers' College, Columbia University, 1961. Series of five booklets of 78 lessons each, containing short reading selections. Exercises contain multiple-choice questions which help develop reading comprehension. Although the lower-level books were designed for elementary grades, they have been used successfully with poor readers on the secondary level and in opportunity programs. They range in reading levels from 2 through 12.

New Rochester Occupational Reading Series–The Job Ahead. Chicago: Science Research Associates, 1963. Identical stories about the problems of youth written on three reading levels: 2nd grade, 3rd and 4th grade, and 4th and 5th grade. Accompanying workbooks provide practice in basic skills.

Reader's Digest Reading Skill Builders. Pleasantville, N.Y.: Reader's Digest Services, 1958-1963. Educational Division. Supplementary Readers. Contain stories and articles adapted to a wide range of reading levels. Profusely illustrated. Varied comprehension and word building exercises. Reading Levels I, II, III written for children. (Note: See *Adult Readers*.) Reading levels IV, V, VI and advanced readers are pertinent for adult reading programs.

Globe Adapted Classics. New York: Globe Book. Graded adaptations of famous stories ranging from 4th to 10th year reading levels. Exercises and questions are included in the texts. A few of the more than 50 titles are published in paperback as well as hard cover editions. Titles include *From Earth to Moon* (1958), *The Count of Monte Cristo* (1945), *20,000 Leagues Under the Sea* (1955), and others.

How and Why Wonder Books. Charles E. Merrill Books, 1962. Colorful, profusely illustrated books on many areas of science. These books, written on about an elementary reading level, present a mature approach.

Interesting Reading Series (revised). Chicago: Follett Publishing, 1961. Nine small books which contain fictional and non-fictional stories and accounts of a variety of topics. These high interest books are on about a 3rd grade reading level.

Kottmeyer and Ware. *Conquests in Reading*. St. Louis: Webster Publishing, 1962. Workbook for remedial instructional in reading and spelling skills. It contains many exercises in phonics, structural analysis, and sight word recognition.

Kottmeyer, William, et al. *The Everyreader Series*. St. Louis: Webster Publishing, 1947-1962. Adapted classics and other low level, high interest stories, each written at about a 4th grade level. Some titles are available in paperback editions, others in clothbound or paperback.

Kottmeyer. *Junior Everyreader Series*. St. Louis: Webster Publishing, 1947-62. Adapted classics and other stories. Published in paperback and hard cover. Ten books in the series. Written on approximately a 3rd grade reading level.

Science Readers. Pleasantville, N.Y.: Reader's Digest Services, Educational Division, 1963. Four books. Low reading level, high interest articles and stories about science and the world around us. Exercises and simple experiments follow most stories. Available at reading levels 3, 4, 5, 6. Titles: *The Earth, Living Things, Matter and Energy, Astronomy and Space*.

Specific Skill Series. Rockville Center, L.I., N.Y.: Barnell Loft, 1962-65. A multilevel program of five reading skills: Locating the Answer, Following Directions, Using the Context, Getting the Facts, Working with Sounds. These workbooks are available in reading levels 1 through 6. They are procurable in quantities of multiples of 10 per level.

Stone, Clarence, et al. *New Practice Readers.* St. Louis: Webster Publishing, 1960-61. Seven readers for reading levels of Grades 2 through 8. Each book contains short reading selections on a variety of topics. Exercises which follow each selection help to build important reading skills. A vocabulary exercise precedes each selection.

Kits, Audio-Visual Materials, Periodicals and Other Aids

Basic Dictionary of American English. New York: Holt, Rinehart and Winston, 1962. Comprehensive dictionary designed for Grades 4 and 5. Applicable in reading improvement programs, remedial programs, and adult basic education programs.

Building Reading Power. Columbus, Ohio: Charles E. Merrill Books, 1964. This laboratory type kit comprises a programmed course in reading skills. The lesson units are in re-usable books which are divided into three areas: context clues, structural analysis, and comprehension skills. This material is written on about a 5th grade reading level.

Dolch, E. W. *Basic Sight Word Cards.* Champaign, Illinois: Garrard Publishers, 1948. 220 flash cards containing basic sight words.

Dolch, E. W. *Picture Word Cards.* Champaign, Illinois: Garrard Publishers. Small flash cards containing 95 common nouns on one side and on the other side the word with a picture. Suitable for individual practice. Also available in large "group size" cards.

Durrell, Donald, et al. *Word Analysis Practice.* New York: Harcourt, Brace and World, 1961. Word cards designed to aid reading growth through the use of phonics and context clues. The range is from 4th to 5th grade reading levels. The set consists of three envelopes, each containing 30 cards. Level A contains 720 words. Levels B and C contain 1200 words.

Kottmeyer and Ware. *Classroom Reading Clinic.* St. Louis: Webster Publishing, 1962. A flexible reading program in kit form, designed to deal with a wide range of reading difficulties. Materials include skills cards (multilevel reading comprehension exercises), word wheels (phonetic and structural analysis skills), basic sight vocabulary cards, a group word game, adapted classics (ten books), record sheets for pupils, and teacher aids.

Kottmeyer. *Webster Word Wheels.* St. Louis: Webster Publishing, 1962. 63 wheels designed for remedial instruction in word recognition. Areas included are consonant blends, prefixes, and suffixes. Vocabulary based on Thorndike. Large word count.

Language Master. Chicago: Bell and Howell. An audio instructional instrument which operates as a modified tape recorder. Utilizes special taped cards with a student drill track and an instructor's track. (The student can erase only the drill track.) This device combines visual and auditory skills and can be used to develop phonics skills, vocabulary skills, and speech and auditory proficiency. Prepared sets and blank sets of cards available.

News for You. Syracuse, N.Y.: Robert S. Laubach, Publisher. Weekly newspaper for adults, written on primary and elementary grade reading levels. Exercises available for building word skills and reading skills accompany the news articles. Available October through May. Level AA - 2nd grade reading level; Level A - 3rd-4th grade reading level; Level B - 5th-6th grade reading level.

Pilot Library Series. Chicago: Science Research Associates, 1964. Kits which accompany the SRA Reading Laboratories but are for independent reading. Each Pilot Library corresponds to the Reading Laboratory on the same level and contains expanded excerpts of the selections in that Laboratory. Pilot Libraries available are IIa, IIc and IIIb.

Reading for Understanding. Chicago: Science Research Associates, 1958. Laboratory type materials on exercise cards. Each card has ten short statements on a variety of subjects. The student picks the best possible conclusion from four that follow each statement. Two separate laboratories provide a reading range from 3rd to 12th grade levels.

S.R.A. Reading Laboratories. Chicago: Science Research Associates, 1956-1964. Self-contained kits of reading materials which contain selections on a wide range of reading levels, 1st through college. Each selection and its accompanying exercises may be removed separately for individual use. The materials in each laboratory progress gradually in difficulty. The exercises provide practice in reading comprehension, reading speed, word recognition, vocabulary development, and listening comprehension. Student Record Books for the laboratories may be purchased at additional cost.

Scope. New York: Scholastic Magazines. Weekly magazine for reluctant readers of high school age. Contains stories, articles, and plays on many different topics. Crossword puzzles and other special features offer practice in vocabulary improvement, reading, and language arts.

Tachist-O-Film Kits. Sunland, Calif.: Learning through Seeing. Classroom kits of filmstrips designed to be used with Tachist-O-Flasher. Contents include Instant Words, Phrases, Phonics, Forms, Arithmetic, and filmstrips for advanced vocabulary building.

Tachist-O-Flasher. Sunland, Calif.: Learning through Seeing. An inexpensive but durable shutter which can convert any filmstrip projector into a tachistoscope (flashing device).

Flaws in Research Design

Doris V. Gunderson

Department of Health, Education and Welfare
Washington, D.C.

Research to the scientist is a careful and systematic inquiry, usually requiring considerable time and using the best developed techniques. Research starts with a purpose, an intent to solve a clearly conceived problem. If the problem is to be solved, it is essential that the most appropriate research design be used. However, once a particular design is selected, it may contain flaws.

The most serious flaw in a research design is lack of specificity. If specificity is not evident in every aspect of a research design, the whole proposal is suspect because the reader cannot be sure what the investigator intends to do. In fact, there is room for considerable doubt that the investigator really knows what he intends to do. The reader must be sure what the problem is, what the hypotheses state, and what statistical design the investigator plans to use. Both the reader and the investigator must know what is meant. The reader can be guided only by what is stated.

During the several years I spent with the Bureau of Research of the U.S.O.E., several hundred research proposals came across my desk, approximately twenty per cent of which were approved. Every proposal which comes to the Bureau of Research is read carefully by several members of the office staff. In addition proposals are read by research scholars representing every major area of research interest.

Proposals which are not approved are so rated generally because of basic flaws, usually in design, which make them unacceptable as good research. Some proposals are approved with certain provisions. This means that flaws exist in the design, but in the opinion of the evaluators the flaws can be corrected. In these cases the research corrdinator acquaints the investigator with the stipulated provisions and works with him to improve the proposal so that a contract can be negotiated.

One of my former colleagues, Dr. Gerald Smith, now at Syracuse University, analyzed 1,091 unsuccessful research proposals, 416 of which were eventually eliminated because they did not follow the Cooperative Research format or had been submitted previously.

His original study is available in unpublished form at Columbia University and is titled *Inadequacies in a Selected Sample of Educational Research Proposals.*

One of the most common inadequacies in research design is the way the problem is stated. The problem section of a research proposal should outline and delimit the problem clearly. An example of a non-delimited problem is a proposal which sought to locate new sources of individuals who could be recruited into education as teachers. The problem section consisted of a series of questions:

1. How many liberal arts graduates can be recruited into teaching and how many of these are in rural or in urban areas?
2. Is it possible to reorganize our schools and use our teachers more effectively?
3. Can the problem be solved by using teacher aides?
4. How many people have valid teaching certificates and are not using them? Could they be induced to return to teaching? If so, what refresher courses are needed?

All of these questions appeared in the problem section of one proposal and serve as a prime example of failure to delimit a problem. Several research projects would be needed to answer all the questions presented.

Smith found, in examining proposals submitted to the Cooperative Research Program during a three-year period, that the most frequent inadequacy, which occurred 87 per cent of the time in the problem section, was the lack of a theoretical framework from which to approach the problem. Smith states that a full developed theory has (1) an explicit set of basic postulates or assumptions, and (2) an equally explicit set of logically derived hypotheses.

The problem of lack of significance also occured frequently—66 per cent of the time; usually an attempt was made to oversimplify complex problems or present them in such a way that it did not appear that the investigator was building upon previous research in the area. An example is this statement of a problem: "identification of factors accounting for bimodalities in data on student achievement at an institution."

Once an individual selects a problem for research, he must familiarize himself with the previous research conducted in the area. Frequently, a research project builds upon results of past research, or it may replicate a completed project to determine whether the same results will be obtained, and if not, to find the reasons for the differences. Certainly no researcher would be so naive that he would fail to examine the body of research to see what previous work had been done in the area. Such examination should represent a critical analysis of the research design as well as the results of the research, and should demonstrate a relationship between past research and the proposal. This relationship should be demonstrated by indicating the basic weakness, if any, of previous approaches, by indicating that the present study follows leads uncovered by past efforts, and by demonstrating that the proposed study is significantly different from past efforts. A listing or summary of research with no description of its contributions to the field is of little value.

Provincialism in a review of research may be another inadequacy. Smith's analysis revealed four types: provincialism of scope, of geography, of substance, and of method. A proposal based on a single research study certainly is narrow in scope and places unnecessary restraints on the investigator, for the rest of the related literature should provide something of value such as suggestions concerning sampling, instrumentation, theoretical framework, or other aspects of the total research process. If all studies cited were conducted at a single institution, one wonders if the investigator didn't want to bother to check another library. If all studies reviewed were carried on in a single state, one wonders if projects conducted in other states might not have provided useful information. If the related research is concentrated on only a limited number of substantive aspects of a problem, the investigator does not have an adequate base for his research. Provincialism of method is obvious if the studies reviewed are conducted with the same instrument. Provincialism indicates that only a part of the total past research effort was considered and that more information which was relevant to the current problem and means of attacking it could have been used by the researcher.

A more serious inadequacy in the research proposal is the failure to include a review of related research. Some proposals contain nothing but reviews of related literature. One assumes that an investigator examines the body of research before he outlines his proposal. The inclusion of non-research references provides no information concerning the researcher's knowledge of the previous research. Although the non-research references may provide valuable information, the foundation for new research should be previous research.

In citing research, some investigators generalize without supporting evidence, or simply state that research has been conducted in the area, or amplify results of investigations without specifically citing them. Such proposals are usually not approved for support. The proposal must contain a firm and specifically stated base in previous research. The proposal should also contain pertinent references to related literature.

Smith found that three per cent of the proposals he examined included no objectives, hypotheses, or questions. An additional 63 per cent were inadequate in the clarity with which the objectives, hypotheses, or questions were presented. The objectives and hypotheses may be stated too broadly for research purposes; for example:

> The broad hypothesis is that a procedure can be followed which will lead to the initial formulation, revision, and final development of a broadly conceived theory of education based upon psychological and other relevant research findings to date.

Probably the writer had something in mind when he made that statement, but it is difficult for the reader to determine just what.

The objectives, hypotheses, or questions must be stated with clarity if the research is to focus on a particular aspect of the problem. Smith found that many of the proposals he examined were seriously inadequate in this respect. Perhaps the writer has worked so intimately with his proposal that he assumes that his reader knows as much about the problem as he does.

In a well written proposal not only are the objectives, hypotheses, and questions clearly stated, but the technical concepts to be employed also are defined with clarity.

If the relationship between the theoretical framework and the objectives, hypotheses, or questions is to be adequate, the framework and theory must be developed in the statement of the problem.

When one thinks of flaws in design, the first thing that comes to mind is the procedure since it is so intimately a part of the design. In determining the population to be used in a study, the research must employ appropriate sampling techniques. Common inadequacies in sampling include incompleteness, a lack of clarity in the sampling plan, and lack of a well-defined population.

Occasionally a researcher will use a sample which is based not upon the purposes of the study but rather upon the proximity of a particular group of subjects. Perhaps he may use an intact group, a group which existed before the study began. He must demonstrate clearly that such a group is adequate for the study he proposes.

Convenience and economy are legitimate criteria to use in selecting a sample. However, if they are the only criteria, the sample must be considered inadequate. The term "representative sample" is a familiar one; however, researchers often do not indicate the population of which the sample is representative. A sample should be representative of a particular, finite population, and this population should be described in the proposal.

Another inadequacy in proposals concerns instrumentation. Occasionally the techniques and/or instruments are not described clearly and completely; if the investigator simply states that he will use a reading and achievement test but fails to state which test, the reader cannot determine whether the instrumentation is adequate to gather the necessary data. If the instrument will provide reasonably reliable data to answer the questions raised in the hypotheses, it is an appropriate instrument to use. The types of instruments vary with the purpose of the study; a questionnaire or a check list might be appropriate in one proposal and totally inappropriate in another.

Smith found that 17 per cent of the proposals he examined did not present a complete description of the statistical treatment of the data. Unless a complete description of the statistical method is given, the reader cannot discover what the investigator plans to do.

Another area of inadequacy is found in the language used for communication. Reading published research is often difficult for the layman if a great deal of statistical terminology is used. However, research proposals are written to be read critically by people familiar with the vocabulary of research design and statistics. Sometimes the writer may employ too much unscientific language; sometimes he organizes his proposal poorly; and less often he may produce a proposal which lacks conciseness and sufficient detail and is difficult to read because the author overuses technical or pseudo-technical language.

A relatively new term now in popular use is "Hawthorne Effect." It refers to any fault in research by which one group of subjects either receives or believes it is receiving special consideration during the course of the study which would not have been given to a control group. The chance of a Hawthorne effect must be controlled or the results of a study may be invalidated.

Smith drew a number of conclusions from his examination of the research proposals. However, as a good researcher does, he warned that they are true for educational research only as the entire field of educational research is reflected in his sample:

1. The state of educational research is at a relatively low level of sophistication.
2. There is little agreement about what constitutes research in education.
3. Much of educational research is focused on relatively simple, straightforward, "surface" problems.
4. There is little emphasis upon theory in educational research.
5. Researchers have difficulty in differentiating between research and practice in education.
6. Educational researchers are making only minimal use of the previous research which has been done on similar problems.
7. There is little agreement about what a review of related research is supposed to accomplish.
8. Researchers are paying too little attention to the problems of good communication.
9. Hastily conceived ideas are translated into proposals without a sufficient period of germination.
10. The lack of detail is perhaps the one single most frequently occurring inadequacy in educational research proposals.

Smith's list of inadequacies or flaws in design of educational research may sound too much like an indictment of all efforts, but they should not be thought of in those terms. They represent a consensus of reasons why more than 1,000 research proposals were judged not worthy of Federal support.

Many of these proposals started out with worthwhile questions or ideas. It is tragic that good ideas are not translated into good research proposals. The purpose of educational research is to discover truth. A research effort that is successful yields a firm base for quality education. Quality education is worth the effort required to design a good research proposal.

Information Retrieval and Reading Research

Edward G. Summers
Indiana University

In light of recent developments in all fields of intellectual endeavor it hardly seems necessary to document the effect of the so-called "explosion" of knowledge and the need for systematic collection, organization and dissemination of information. The number of books published increases at the rate of ten per cent every year. It is estimated that university libraries currently grow at the rate of 3 to 4 per cent per year and at much higher rates in smaller institutions. There are approximately seventy to seventy-five thousand scholarly journals alone available to the academic community.

Other sources have pointed out the increasing cruciality of large scale information transfer networks and the increase in the extent to which recorded information has become a critical need in all aspects of modern life—education, business, the professions, industry and research. It becomes clear that with the increase in materials and development of newer techniques for handling and duplicating information the economic patterns in which authors, publishers and libraries are operating will undergo change. An obvious example relates to the changes required in copyright procedures in recent years. It is extremely difficult to specify the exact nature and scope of future information transfer networks except to state that far-reaching change and experimentation is predictable.

Even a modest research endeavor is impossible without an adequate knowledge of pertinent and current information involving access to book, journal and report collections. The good researcher will not be satisfied until he has access to past and present records. The key is access to comprehensive sources including research and non-research, published and unpublished documents so that the investigator, whoever he is, can be free to make his own selection from the corpus of material organized and collected. It is evident that effective access to information requires the development of more flexible and sophisticated techniques. This involves more than the gathering and housing of information and extends to the active dissemination of information into the hands of those who need and can use it.

ERIC, ITS ORGANIZATION AND JOB

The "knowledge explosion" is a fact of modern life. Research literature and information related to education increase at a phenomenal rate. U.S. Commissioner of Education Harold Howe II stated recently, "The rate at which this information emerges will accelerate in the years to come. Unless it is made readily available to teachers, administrators, and researchers themselves, progress in education will be thwarted." To assure that every child may benefit from advances in education, the U.S. Office of Education has created the Educational Research Information Center (ERIC). ERIC is a nationwide information system and its over-all system design blends together certain features from the centralized document repository concept as well as aspects of the specialized information center. Operating within the Office of Education as a branch of the Division of Research Training and Dissemination, Bureau of Research, the headquarters office is referred to as Central ERIC to distinguish it from its components in the field.

ERIC Clearinghouses

The heart of the ERIC system consists of knowledgeable educational interpretors, located at the separate centers, who can collect, review, and distill information. The centers not only retrieve and disseminate information but also create new information in a given area. The ERIC centers select and evaluate the most significant and timely information in their respective areas. Information from the centers will be uniformly processed and stored. All new projects initiated by the Bureau of Research and information about final reports from completed projects will be available through the central facility. Twelve decentralized national clearinghouses, each focused on a special subject area, now make up ERIC's field network.* The ERIC system will grow in the future with additional centers gradually added to the network.

Dissemination of Research and Information

A bulletin *Research in Education* will be available to the public through the Government Printing Office. *Research in Education* is a monthly catalog which provides up-to-date information about educational research sponsored by the Bureau of Research. The catalog is designed to keep teachers, administrators, research specialists, others in the educational community, and the general public informed about the latest significant findings from educational research. One section of *Research in Education* lists *reports* of completed USOE projects. Descriptor terms and a resume of each report are included in addition to citation data. Reports are indexed by author, institution, subject, USOE program, and contract and grant number. Reports cited are available in microfiche and hard cover at listed prices from the ERIC Document Reproduction Service.* Complete information on ordering reports is included. *Research in Education* also announces research *projects* as they are initiated by the Bureau of Research. Project documents are *not* available from the ERIC Document Reproduction Service. They are included in the catalog to keep the reader abreast of current as well as completed research. The sections on projects parallel those on reports: project resumes and indexes by investigator, institution, subject, program, and contract and grant number.

---

* The clearinghouses are Junior Colleges, University of California at Los Angeles; Exceptional Children, National Education Association; Linguistics and Uncommonly Taught Foreign Languages, Center for Applied Linguistics; Counseling and Personnel Services, University of Michigan; Science Education, The Ohio State University; Rural Education and Small Schools, New Mexico State University; Disadvantaged, Yeshiva University; Teaching of Foreign Languages, Modern Language Association; School Personnel, City University of New York; Vocational and Technical Education, The Ohio State University; Educational Administration, University of Oregon; and Reading, Indiana University.

The initial issues of *Research in Education* will focus on OE research projects and reports. The contents will be expanded later to include materials from the ERIC centers. Another major publication will be an historical volume listing all significant final reports submitted to the Office of Education for research activities supported since 1956. Documents in the ERIC collection will be put on microfiche through a contract with Bell and Howell Company. Users of the ERIC system will be able to purchase inexpensive copies in microfiche or hard copy. Documents can be ordered by using the document number which will appear in the monthly publication.

Microfiche and Hard Copy

"Microfiche" is a French word which describes a sheet of film containing microimages. The "microfiche" distributed by the ERIC Reproduction Service is a 4"x6" sheet of microfilm which can contain up to 60-70 pages of a report or document. Each microfiche card consists of a heading or title area which includes an accession number, the title of the document, the source, the author, and other basic information which will assist the user; and the microtext which is made up of frames of microimages, each frame containing the equal of an 8½"x11" page of material. The first frame of the microtext consists of the document abstract and its index terms and the succeeding frames are the text of the document. The microfiche is placed in a microfiche reader to enlarge a particular page image to original size. Microfiche readers are available at a reasonable cost from several firms in the microfilm services industry. "Hard copy" is the name given to documents produced by Xerography. These paper copies are 70% reproductions of the original copy, will be 6"x8" in size, and are bound in soft covers. Generally a sheet of microfiche which would contain fifty pages of documentation costs about nine cents, and hard copy, $2.00 for fifty pages.

The greatest impetus for the use of microfiche has come from the federal government. In 1963 the Council on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology established the format and specifications for all government microfiche. The standards established by COSATI have been generally adopted for microfiche reproduction. This standardization of format eliminated many of the ills of the old microfilm and other microforms and has made microfiche more readily acceptable by researchers. In 1965, the Defense Documentation Center (DDC) converted its film reproduction of research and development reports from microfilm to microfiche. Each month U.S. government agencies supply over one million microfiche copies of technical reports to interested scientists and researchers. Industrial firms are big consumers of the federal government's technical research. These firms also make use of microfiche within their organizations, principally for cataloging and dissemination of internal information. One large company indicated that maintenance men can carry around a thousand pages of instructions—plus a viewer—in a hip pocket.

---

*ERIC Document Reproduction Service, Micro Photo Division, Bell and Howell Co., 1700 Shaw Avenue, Cleveland, Ohio 44112.

Increasing technological changes and constantly expanding boundaries of knowledge create tremendous demands for information. Microfiche was not meant to replace books or save space in a library. Its economy and easy reproduction make it possible to put a world of reference material in a researcher's hands. Microfiche is also an excellent means of disseminating the large body of reports and ephemeral but important information which may never be published.

ERIC CRIER, ITS SCOPE AND AIMS

The International Reading Association and Indiana University have entered into a joint project with the USOE to develop and operate a national reading clearinghouse, ERIC/CRIER, at Indiana University. The IRA has a long, continuing interest in the collection and dissemination of information on reading. The *Clearinghouse on Retrieval of Information and Evaluation on Reading* will acquire, evaluate, abstract, store, retrieve, and disseminate current educational documents and information in the reading field. The scope of acquisition and dissemination for ERIC/CRIER is as follows:

> The Clearinghouse on Reading is responsible for acquiring research reports, materials and information related to all aspects of reading behavior with emphasis on physiology, psychology, sociology, and the teaching of reading. Included are reports on the development and evaluation of instructional materials, curricula, tests and measurements, preparation of reading teachers and specialists, and methodology at all levels; the role of libraries and other agencies in fostering and guiding reading; and diagnostic and remedial services in school and clinic settings.

ERIC/CRIER's goal is to organize the output of significant research, information, and resources on reading into an integrated system thus easing the educator's information problems and providing convenient access to information of specific interest. Key precepts include information analysis and organization as well as discovery and collection.

ERIC/CRIER is directed by Dr. Leo C. Fay and Dr. Edward G. Summers of Indiana University. It is aided by a broadly representative Advisory Board. Dr. Theodore Clymer, University of Minnesota, acts as co-chairman of the Advisory Board, and Dr. Ralph Staiger provides professional liaison with the International Reading Association. The Clearinghouse is operated by professional staff from reading, library science, and information and computer sciences, and maintains a highly qualified staff for document analysis and indexing.

Key ERIC/CRIER Activities

ERIC/CRIER will carry on a number of functions as a specialized clearinghouse in addition to serving as a collection and input arm of Central ERIC. The Clearinghouse will provide various services and function as an information analysis center for reading. Key activities include:

1. Initiating publications specifically designed to aid the educator in coping with information problems in reading.
2. Providing information on specific topics in reading through a retrieval system.
3. Developing and periodically updating a catalog of available published instructional materials in reading.
4. Generating summary reports on significant topics in reading.
5. Conducting and coordinating research which focuses on topics necessitating access to the broad professional group in reading or to a comprehensive collection of documents on reading.

The Clearinghouse will publish the *ERIC/CRIER Newsletter* to collect information and inform users of current activities, services, projects in reading, and recent accessions.

Initially much of ERIC/CRIER's activity is being directed toward building the store of documents and information. As file building continues, services will be gradually initiated and announced. *Only limited service will be available until the Clearinghouse becomes fully operational in late 1967.* The base of coverage and service of ERIC/CRIER will be broadened as the Clearinghouse develops.

ERIC/CRIER activities are built upon two broad objectives. The first objective includes the identification, collection, organization, and dissemination of information and evaluation on reading. The second includes the analysis and synthesis of information and, in addition, the creation of information in areas where need exists but where existing information and data may be meager. The Clearinghouse, for example, wishes to identify and obtain materials which could aid in decision making in improving reading practices and which could have immediate and general application in a variety of situations. In addition, the Clearinghouse will act as a catalyst in using and extending the store of emerging knowledge on reading to improve educational practices. It is particularly interested in research findings, critical analyses of experiences, and identification of important new ideas in reading.

Developing an Acquisitions Network for Reading

In developing an acquisitions network for identification of significant materials on reading, the ERIC/CRIER staff and Advisory Board strongly emphasize the necessity for quality control of input. In attempting to develop an acquisitions network, they have adopted the philosophy that the person best suited to determine the potential impact and importance of a document is the individual involved in some area of reading. Thus, the acquisition concept for the Clearinghouse envisions establishing a network of individuals involved in reading scattered throughout the nation. Such individuals will constitute an initial screening in collecting and forwarding documents which become candidate materials for inclusion in the holdings of ERIC/CRIER.

A clearinghouse which collects and disseminates only the published literature would be of limited value in keeping users informed of newer practices and frontier-type activities in reading. The publication lag in published materials is well known. Although these materials will also be systematically included, a major thrust is being made to acquire "fugitive" materials. Such material is often ignored completely or reaches only a limited audience. It is felt that the collection and organization of such materials in a form that is readily accessible will provide a major resource for activities ranging from research to program planning and implementation. The identification, collection, and organization of such material is admittedly a difficult task. It is not certain how much of this material exists. It is suspected that a considerable amount is available if it can be ferreted out and collected. It will take patience and determination for a professional group to contemplate working in the grey area of fugitive, unpublished material.

ERIC/CRIER is specifically interested in information and reports on reading which may be available in the following forms:

Research and Project Proposals
Research and Project Reports
Materials from NDEA Institutes and Other Special Programs
Speeches and Other Statements of Opinion or Discussion of General Issues
Curriculum Guides/Teacher Guides
Program Outlines/Descriptions and Administrative Reports
School-Home/School Community Relations Materials
Bibliographies
Exemplary Course Related Materials
Critical Reviews of Research

The listing is not all inclusive but suggests a number of document sources which might be of value.

The following factors seem of importance in selecting candidate materials:

1. Does the material reflect professional competence in its preparation?
2. Does the material discuss issues or projects of current significance?
3. Does the material have substance and exhibit the potential of having an impact on current concepts or practices?
4. Does the material aid in organizing and pulling together some topic or area in reading?
5. Does the material outline methodology or procedures which could be of use to others?
6. Is the material of recent origin (1960 onward) and not readily available through published sources?

Your help is invited in acquiring significant documents of high quality on reading.

1. Keep ERIC/CRIER informed of new projects and programs that relate to research and development in reading.
2. Send two copies of documents judged to be of sufficient quality and interest to the Clearinghouse. Materials may be of any size, shape, or form but should be clear for photographing. Recent materials (1960 onward) are requested.
3. Inform others of the need for quality materials and the proposed services of the Clearinghouse.

Reading Research and the Federal Government

Richard B. Adams

U.S. Office of Education, Washington, D.C.

INTRODUCTION

The design on the fabric of our society is being replaced. That new design is not yet clear because only the vague outlines are beginning to take shape. But we do know that this new design is not just some overprinting on the surface of the cloth. Many forces are at work—technological, economic, social—which are altering the very texture of the fabric of our society. This new design is appearing in the weave. The warp and woof of our institutions and resources are being rewoven into a new configuration.

What is provoking this social change? In a phrase, it is the urgent need for solutions to the vexing problems facing our developing society. The search for answers has created a conceptual reappraisal. No longer do we perceive the problems of society as separate and unrelated ills infecting the various sectors of our public and private welfare. Rather, we are beginning to understand the interdependencies of dynamic forces by which a change in one sector interacts with several other sectors and sets up reverberating effects creating stresses and strains which travel throughout the entire society. In short, we are beginning to see the problems of our society within a new frame of reference.

You know the problems. They are the problems of growth—an expanding population, new technologies, emerging industries, the information explosion, the international tensions which follow in the wake of a shrinking globe—these problems have created stresses and strains on an order of magnitude with which no society in the history of civilization has ever had to cope.

Our survival depends upon our solving these problems. If we cannot learn how to provide the goods and services required by an enlarging population then we shall have to learn how to survive on less than that to which we have become accustomed. If we cannot learn the proper care and feeding of an expanding consumer economy, then we shall have to learn how to survive the consequences of cyclical events of boom and bust, of feast and famine. If we cannot learn how to stop polluting our air and water, then we shall have to learn how to survive by physically adapting to our environment as we wallow within our waste. If we cannot learn how to control peacefully the outer space which separates one people from another, then we shall all be consumed by the power of the inner space of the hydrogen atom.

The gravity of these problems, then, creates a climate of urgency for their solution. Let me spell out one problem the solution of which holds enormous implications for the future of behavioral science in general and educational research in particular. As I develop this problem I will attempt to show you how a solution emerges as a result of a conceptual revolution, that is to say, a new way of looking at the economics of educational expenditures. All of this will be "ground" against which I would like to place as "figure" that landmark piece of legislation which is an instrument of planned revolution, namely, the Elementary and Secondary School Act of 1965. Hopefully, you will then have the basic data from which you can extrapolate the future environment for reading research.

MANPOWER NEEDS IN THE 1980's

The problem I wish to spell out is found in the population characteristics of the United States.

Figure 1

Age	Year, numbers in millions			
Group	1950	1960	1970	1980
0-24	62.8	79.8	104	129
25-64	76	82.9	90	106
65 and over	12.2	16.5	20	25
Total	151	179	214	260

Figure 1 shows the population growth of three age segments between 1950 and 1960 and the projections for 1970 and 1980. Not too much emerges when the data are displayed in absolute numbers. However, when the data are displayed by percentage of the total population in each age group, an important fact emerges.

Figure 2

Age	Year			
Group	1950	1960	1970	1980
0-24	41.6	44.5	48.6	49.6
25-64	50	46	42.1	40.8
65 and over	8.4	9.5	9.3	9.6
Total	100%	100%	100%	100%
		Year		

What sticks out in Figure 2 is that the percentage figures for the age groups of 0-24 and 25-64 between 1950 and 1980 nearly reverse themselves. If the intervals for the age breakdown were more refined, it would show that by 1980 the projected number of people over 80 years of age increases approximately 200%.

Let us think of the two age groups 0-24, 65 and over as consumers. I ask you to think of them as consumers because they consume goods and services generated by the economy and do not substantially produce or return anything to the economy. The young people are not in the labor market—they are acquiring the skills for future participation in the labor market. The older people have either outworn skills and/or bodies and are retired to live out their old age on pensions or social security and consume goods and services—not the least of which are medical services—until they die of natural causes. Let us take the data of Figure 2 and display it graphically.

Figure 3

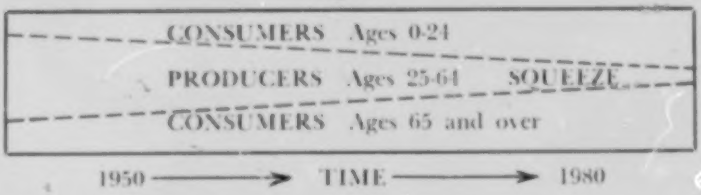


Figure 3 shows that while our population's demand for goods and services is on the increase, at the same time the available manpower to supply those goods and services is on the decrease. Fewer workers will have to carry a larger burden.

Now let us dwell for a moment on what the 1980's will demand of our society. First, we know that our economy will be producing highly sophisticated goods and services which will demand exceedingly well trained technical and professional skills from the labor force. Secondly, our relatively shrinking work force will put a pressure of demand on the pool of the unemployed. These requirements of our economy will diminish our ability to tolerate the costs of supporting the chronically unemployed. Everyone old enough to work must possess employable skills. Our burgeoning technology may very well create more jobs in 1980 than there will be workers to fill them. Lastly, we cannot afford to continue to carry the enormous welfare burden—the large number of our population currently on the relief rolls—into the 1980's. Domestic peace and economic prosperity of the 1980's will be in jeopardy if our society continues to disenfranchise a segment of our population by keeping them out of the main stream of participation in our national economic and political life. The crippling deprivations associated with poverty and racial discrimination of the past present a bill to the total society it can ill afford to pay now and will probably be unable to afford in the 1980's.

SHORTCOMINGS OF OUR SCHOOLS

The projected demands on our population in the 1980's are very real. Remember, 1980 is less than one generation away. Informed observers agree that our current educational procedures and practices have not, cannot, and will not come to grips in any meaningful way with our future society's demand for an enlightened, informed, skillfully competent and psychologically flexible citizenry. The growing number of dropouts, washouts, and kickouts our schools are generating is evidence of the failure of our educational system. Rather than equip all the students with the necessary skills to participate in a pluralistic society, it has imparted skills—and not too well—to a selected segment of our population. Rather than mine the rich diversity inherent in our population mix—a diversity which democracy thrives upon—our schools have alienated a segment of our population. Moreover, it has homogenized the remainder by placing them on a trajectory of creeping conformity. By apathy, ignorance, and maladministration many of our schools have wasted too much of our most precious national resource.

If my criticism of our schools sounds too harsh let me hasten to soften it by pointing out that our schools are social institutions and merely reflect in microcosm the continuities and discontinuities of our larger society. To indict our schools of apathy and ignorance is to indict our society of the same faults. After all, in America the kind of schools we get are the kind of schools we want.

AWARENESS OF THE NEED FOR REFORM

But now the situation has changed. As we look into the future and gird ourselves for tomorrow's demands we realize that the schools we've got are NOT the schools we want. The schools of tomorrow will HAVE to do a better job of teaching and training if our population is to be intellectually equipped to shoulder the burdens of the 1980's. It means that a make-shift, patch work job of up-dating our schools will not be sufficient.

A veritable revolution of our educational procedures and practices is needed. As we move into the 1970's we will be deploying fewer teachers among greater numbers of students. This means our schools must learn how to take advantage of the miracles of automation and devise inexpensive means for utilizing computer assisted instruction. Our schools must also learn how to engage and overcome the deficits presented by our young people from the ghettos and inner cities. Our schools must learn how to close the gap between the state of our systematic knowledge of the learning process and the state of the art of teaching as it is currently practiced in our classrooms. In brief, nothing less than a major habilitation effort will suffice to provide for the demands that lie ahead.

CAN WE AFFORD THE COSTS OF REFORM?

Let me pause for a moment and review briefly some recent history. You will remember the shock of Sputnick and how it catapulted the deficiencies of our educational establishment into a national debate. The works of James B. Conant, Alfred Bestor, Rudolph Flesch, Admiral Rickover, and Arthur Trace were being discussed on television, at cocktail parties, in beauty parlors, and in bars. Proponents of general Federal aid to education argued that only the resources of the Federal Government could mount the programs of needed reform. Opponents to Federal aid were still not convinced that general Federal aid did not also mean general Federal control. And many members of Congress, who looked upon educational expenditures as a consumption function, were concerned about costs and taxes.

This concern over costs and taxes and the perception of education as a *consumption function* is crucial so let us give this concern a careful look. First, can we afford the costs of pumping large sums of money into educational enterprises? After all, there is widespread concern over our growing national debt. Let us look at two statistics which, when taken together, indicate the health of our economy. These two statistics are the gross national product (GNP) and the national debt (ND).

Figure 4

In Billions of Current Dollars

Year	GNP*	ND**
1929	103.1	16.3
1950	284.8	256.7
1960	503.7	290.4
1965	681.2	321.4

*Department of Commerce

**Treasury Department

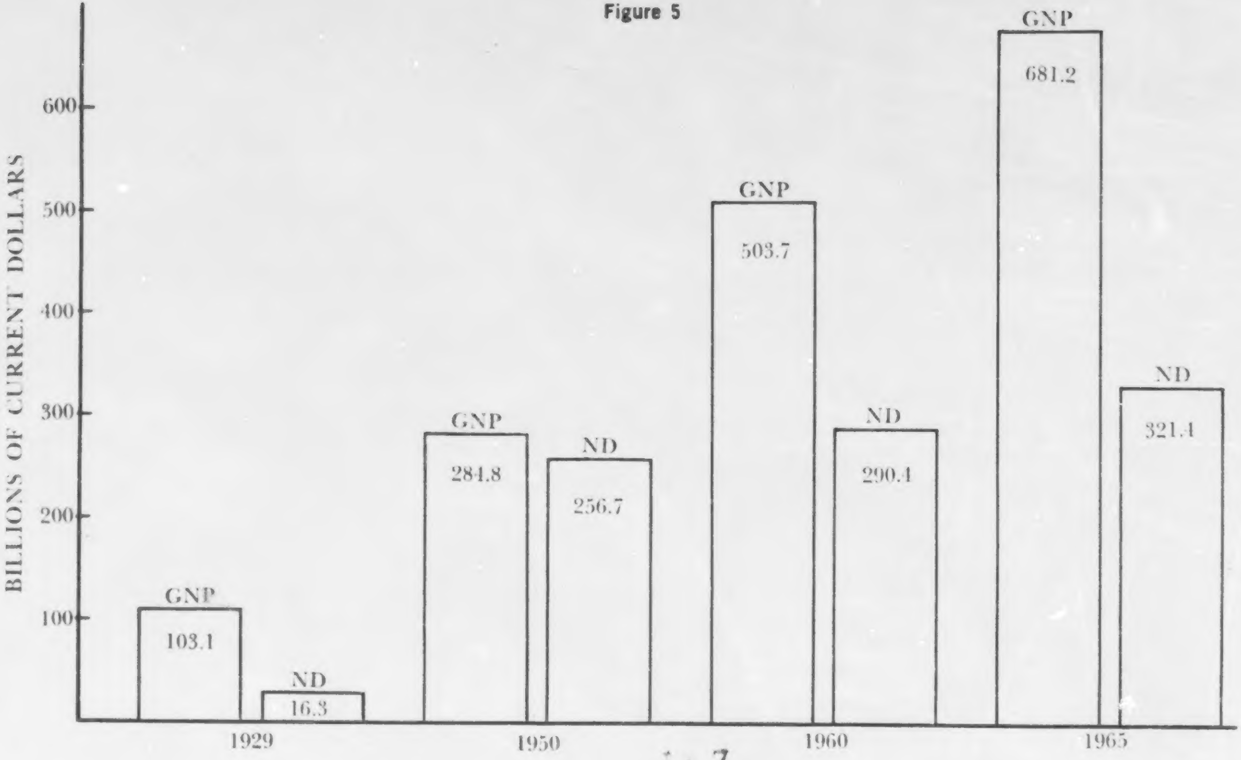
To make the inter-relationship of these figures (Figure 4) more vivid, I have cast them into a bar graph. Inspection of Figure 5 shows that the ratio of our national debt to our gross national product is now more favorable than it has ever been before.

Obviously we *can* afford the costs of educational reform. Do not let the significance of this fact escape you. For years we have lived with the expectation that increases in the national debt stimulate inflationary forces and threaten our economic stability. Indeed, it was just a little over four years ago that President Kennedy, in his Commencement Address at Yale University, asked us to "consider the myth and reality in our national economy." After exploring some myths associated with our public debt he concluded, ". . . debts, public and private, are neither good nor bad, in and of themselves. Borrowing can lead to over-extension and collapse—but it can also lead to expansion and strength."

Now let us turn to the matter of how we should regard educational expenditures. One of our most seminal economists, Theodore W. Schultz, tells us

> The level of income and the level of education of a country apparently are related, for when one is high so is the other. Does this simply mean that a country with a high level of income can afford to spend and, as a rule, does spend enough to obtain for its people a high level of education?

Figure 5


BILLIONS OF CURRENT DOLLARS
600
500
400
300
200
100
GNP
103.1
ND
16.3
1929
GNP
284.8
ND
256.7
1950
GNP
503.7
ND
290.4
1960
GNP
681.2
ND
321.4
1965

> This has been the predominant view because we have not been inclined to look upon education as an *investment in people* but have regarded it as component in consumption, albeit not as urgent as our daily bread, although contributing to a fuller life.

Schultz goes on and makes a brilliant economic analysis of education interacting with our economy. He demonstrates that it would be more nearly correct to regard educational expenditures *not* as a consumer cost but rather as a capital investment.

Nor was Schultz the only observer embracing this point of view. Peter Drucker told us, "the work of knowledge is no longer unproductive in terms of goods and services. The man who works exclusively or primarily with his hands is the one who is increasingly unproductive. Productive work in today's society and economy is work that applies vision, knowledge, and concepts—work that is based on the mind rather than on the hand." Having said that he apparently felt the implications of his remarks would go unnoticed because he went on and said, "This may sound obvious. But it is so new that it is not yet recognized." Even this emphasis was not enough; Drucker felt constrained to explain further, "Our accountants . . . still base their terms and measurements on the eighteenth-century tenet that manual labor creates all value. They still call it 'productive labor'; the work of men of knowledge is 'nonproductive labor' or 'overhead,' a term reeking of moral disapproval. When economists talk of 'capital' they rarely include 'knowledge.' Yet this is the only real capital today. The development of educated people is the most important capital formation, their number, quality, and utilization the most meaningful index of the wealth-producing capacity of a country." Several pages later he had to say it again, "The conclusion from this is as simple as it is new: Educational development becomes a priority of national policy."

These notions—the notion regarding our national debt and education as capital formation—are revolutionary. These notions are the conceptual reappraisal to which I alluded in my opening remarks.

But what, you may ask, does all this mean? What promise did it hold for us who toil in the educational vinyards? The domestic dialogue over the deficiencies of our schools, the build-up of population pressures, a more enlightened view of the relationship between educational resources and the national economy—these generated a climate of opinion in which a feasible solution to our problems could be perceived. And within that climate of opinion Francis Keppel, the then Commissioner of Education, and President Johnson were *able* to functionally exercise their leadership and present to the Congress a legislative program which the Congress could and did accept.

THE ELEMENTARY AND SECONDARY SCHOOL ACT OF 1965

That legislation, signed into law as the Elementary and Secondary School Act of 1965, represents a breakthrough for general Federal aid to education. It will prove to be a landmark not only in the history of

American education but also in the history of—if you will permit me the expression—a Great Society.

Public Law 89-10 is truly a remarkable piece of legislation. It singles out and provides a program for the educationally deprived children of the poor. It recognizes the need for school library resources, textbooks, and other instructional materials. It stimulates innovative and exemplary educational services to promote excellence by evolutionary means. It acknowledges our need for more and better research and related activities. And lastly, it understands the problems faced by our State departments of education.

The Act also provided the money to match its scope. It provided $1,385,000,000 over a five year period beginning in Fiscal year 1966.

Figure 6

For the poor and educationally deprived:	$1,060,000,000
For school libraries and related materials:	100,000,000
For innovative and exemplary services:	100,000,000
For research and related activities:	100,000,000
For strengthening State departments of Education:	25,000,000
Total:	$1,385,000,000

Figure 6 shows you where the one billion, three hundred and eighty-five million dollars are being invested.

The Act also provides a subtle something else which is only apparent after a careful reading of its language. It lays to rest the old bugaboo of Federal control. The Act does not lock the States and local school districts into a straight jacket of ideas "thunk up" by Washington bureaucrats. Rather, it provides, indeed, insists upon, plenty of maneuvering space for the exercise of local initiative. In a phrase, Public Law 89-10 is an Act of Creative Federalism where all governments—Federal, State, and local—work together in partnership. Each government gives and takes from the others what it could not give or take of itself.

Research in the planned revolution. Research is always planned and the history of science demonstrates that discovery always results in revolution. I need not dwell on this. We all know what impact the automobile has had upon our social structure. Admittedly, many products of science visit us with unanticipated consequences. Nevertheless, the practice of science—that is, research—is a constructive force. It is a way of learning more about ourselves and our environment. It helps us solve problems.

One very large problem currently facing our schools is the teaching and learning of the language arts skills. Or, if you prefer, literacy.

REFERENCE

Schultz, Theodore W., "Education and Economic Growth," Part II, *60th Yearbook, National Society for the Study of Education*, Univ. of Chicago Press, 1961, pp. 46-47.

Reading and Cognition

Russell G. Stauffer

University of Delaware
Newark, Delaware

The major purpose of most reading instruction is to improve comprehension. To comprehend means to understand as thoroughly as circumstances permit. The limiting factors are the maturity of the reader and the capabilities of the writer. Of course, it is the reader's *purpose* for reading that primarily determines how he will read, what he will read, and what he expects from what he reads. And it is the reader's purpose which is primarily determined by his level of conceptual development and his cognitive functioning. This is why concept development needs to be given so central a position in reading instruction.

Reading is a mental process, as is concept development. To a large degree the processes are similar. The untrained child acquires concepts, and functions cognitively much as does the trained child. The major difference is that the child being trained is taught to pursue excellence and to do so deliberately as he is brought into contact with the curriculum. Both processes are active processes–questioning, testing, inventing, and generally information-processing and producing. It is not the processes themselves that produce excellence, but rather the active and voluntary use of the processes. Purposeful information-generating behavior yields cognitive processing economy and reading processing efficency and makes it possible for the child to go beyond the information given.

It is not at all difficult to agree with Piaget's (5) statement that the principal goal of education is to create students capable of doing new things–students who are creative, inventive, and discoverers. Cognitive functioning that pursues excellence requires just such performing. Reading performance in the pursuit of excellences makes similar demands. Each new word, each new phrase or clause, each new sentence, each paragraph, each page, each chapter requires the reader to create, to invent, to discover.

It is not at all difficult to agree with Paiget's second goal of education–to form minds which can be critical and can verify. If this is the grist of cognitive functioning, it certainly is of reading. The great danger today is of "slogans, collective opinions, ready-made trends of thought" transmitted either by voice or by print. The only way to resist is to do so individually. Each pupil must be taught to pursue excellence actively. Each pupil must learn to criticize, to tell what is verifiable, to distinguish between what is proven and what is not.

DIMENSIONS OF EXCELLENCE

In this regard a statement prepared by the Commission on Educational Policy of the California Teachers Association entitled *Dimensions of Excellence in Education* (2) is ideal to use in measuring the excellence of reading instruction. The preservation of a free society and the fulfillment of its purpose depend upon each individual's ability to read and to listen and to do so critically. The Commission's long deliberations led it to arrange its conclusions under six headings: capacity for inquiry, problem-solving competence, communication and computation skills, familarity with organized disciplines, cultivated enjoyments, and democratic commitment. The first three dimensions have the "flavor" of processes and as such are particularly pertinent to this discussion. The last three dimensions bear the quality of outcomes and as such they help bring perspective to the processes and to make them more significant. In other words, the dimensions are seen as mutually supportive.

Capacity for inquiry was placed at the head of the list. This was done to advance the view that mental power (cognitive functioning) is best evidenced by the student's disposition for and capacity to ask "Why?" or to ask "other cogent questions" and to find sound answers. While it is true that all aspects of life's experience are deserving of this kind of study and response, it is equally as true that it is the duty of the schools to teach the disposition and capacity for inquiry. The Commission states (2:8): "Nevertheless, the excellence of the educational result lies not *per se* in subject matter or its difficulty but in the power of productive thinking found in the student's utilization of knowledge. The subject is means rather than end."

Another way of referring to capacity for inquiry is to speak of a student's will to learn. Excellent instruction will cultivate the desire to know among all students and will do it in such a way that it will result in satisfaction through achievement.

Problem-solving competence, a second dimension in education, is a student's ability to identify, define, and solve problems. In the classroom the teacher must arrange the classroom environment so that the students are provoked to search for or define problems because (2: 10): "if the problems are not those of the students, *they do not learn.*" It is the teacher's responsibility to see to it that the problems are significant.

The Commission states (2: 10): "Students can be instructed in apprehending cause and effect, the relationships of situational factors, the benefit of organization and system, the dependence upon accuracy, the need for examining alternatives, and the requirement for evaluation of decisions." This competence, in turn, is one overt means for students to learn respect for and appreciation of the integrity of knowledge. Once a pupil's desire to know and his ability to declare and solve problems are enhanced, then the school must recognize another major responsibility—to offer "access to the material, information, and experience comprising satisfying answers."

Communication and computation skills functioning through language, number, and other symbols are fundamental. So large a portion of man's thinking processes is involved with the communication of thought that accuracy of thought is not accomplished until it appears clearly and accurately in communicable form. "Students should emerge from instruction with an appreciative attitude toward the structures of all communication, verbal or mathematical." In addition, their communication should be characterized by such terms as beauty, elegance, or style and a reflected enjoyment that communication can serve its purpose so admirably.

Familiarity with organized disciplines or aggregations of accumulated and ordered knowledge rather than "command of" is deliberately put this way by the Commission because *(2:16)*:

> The great mass of school graduates can have a useful familiarity with a number of subject disciplines without complete command of them . . . pedagogical concern—is centered on whether the instruction is calling forth capacity for inquiry, problem-solving competence, and communications skill. . . .
>
> Familiarity with knowledge envisions not the overwhelming task of encompassing it all—a task now grown too great for anyone—but rather the capacity to select information from its most readily available sources to meet the needs of life.

Cultivated enjoyments are considered a part of the intellectual life of an individual, "directed into channels where emotive and appreciative experiences have full opportunity to be known." (2:17). Most people are interested in a variety of activities from which they obtain personal satisfaction. The excellent school will not leave such personal growth to chance because cultivated enjoyments are useful in promoting social communications in that they help people to better understand and respond to each other. A long list of enjoyments could be listed ranging from creative hobby-crafts through many forms of artistic performance, to the entire field of skilled sports and athletics, to community services of a social or civic nature.

Democratic commitment is viewed as having two facets. First, the individual achieves his own inner stability as he continuously learns to recognize his strengths and weaknesses and learns to understand and accept himself. The Greeks said "Know thyself" and the Romans said "Control thyself." Today we frequently refer to these goals as self-fulfillment or self-realization.

Second, the individual sees himself as a responsible member of society. He has a commitment to ideals, standards, ways of life and to other persons. He has a concern for the social community, knows what his community expects of him, and has the capacity for effective action within the group. Now the Jewish maxim "Give thyself" becomes pertinent, and (2:22): "Lessons embodying these principles could be expected to result in increased growth in personal self-direction and in capacity for moral decision."

Undoubtedly where each dimension plays a significant part in the educational process, excellence will result. Undoubtedly, too, the similarity between the processes as described by the Commission (Capacity for inquiry, Problem solving competence, and Communication and Computation skills) and the cognitive processes involved in critical and creative reading is striking.

COGNITIVE FUNCTIONING

A problem-solver seeking to attain a concept makes inferences, tests the inferences, and changes the inferences as he meets new contingencies. He has a plan of strategy that he uses and by which he makes decisions. The ideal is to obtain a concept with a minimum number of encounters and with the greatest cognitive economy. What is creative about the strategies employed is that the patterns clearly reflect the demands of the situation. No one ideal strategy is applicable to all situations. Strategies change with the nature of the concept to be attained, the circumstances (social-personal-physical) that exist, the consequences that seem reasonable, and so on.

CONCEPT ATTAINMENT

A first step enroute to concept attainment is concept formation, according to Bruner (1:22). Concept formation reflects an intimate aspect of the formation of hypotheses. Needed by a subject (a person) is some attempt at sorting particulars into some meaningful set of classes in the interest of ordering their diversity and forming a concept. Bruner's mushroom illustration is apt in this regard. Suppose a subject were examining mushrooms (without any prior knowledge or experience with mushrooms) to determine whether or not they were edible. He would bring to this task most likely concepts about edibles and non-edibles, plants, food preparation, and so on; and his experience would suggest a study of mushrooms before using them as food. To *attain* the concept that he had formed about mushrooms, he now would proceed to find predictive defining attributes that would distinguish edible mushrooms (examples or examplars) from non-edible mushrooms (not examples or nonexamplars).

In many ways it might be said that concept formation is both a first step and a last step in a spiraling extension and refinement of concepts (6). As a last step, once a concept has been established, as in the mushroom example on a concrete perceptual level, then additional hypotheses on the abstract-conceptual level might be set into play about other unobserved properties. For example, from the non-edible mushrooms it might be inferred that a food poison anti-toxin could be developed. A network of predictive defining attributes would need to be distinguished so that an act of categorization could be accomplished.

Categorization is a process—an "act of invention." As such, it is probably the most significant aspect of cognition and is that one great quality of the mind that permits man to adjust to his environment.

Under the concept of *cars* one can deal with a vast assortment of models, makes, and styles and can do so quite adequately. Under the concept *truck*, another and different grouping can be made without requiring for many a finer discrimination such as half-ton truck, two-ton truck, and so on. The uniqueness of such categories is their usefulness and their economy. The concept *car* or *truck* does not need to be relearned each time a car or truck is being recognized. The many particulars that distinguish one model and make of car from that of another need not enslave man intellectually. Additional particularization will not be necessary unless he wishes to or needs to further systematize his knowledge of cars and trucks. If this were not the case and man were required in each instance to discriminate in minute detail before a concept could be attained and used, he would, as Bruner (1:19) says, be a slave to the particular. As it is, man's intellectual freedom and responsibility are achieved by his capacity to categorize.

Durant indicates that this need to deal with generalities as well as particulars was a distinguishing factor between the philosophy of the Socratic-Platonic school and the Aristotelian school (3:59):

> There was, in the Socratic-Platonic demand for definitions, a tendency away from things and facts to theories and ideas, from particulars to generalities, from science to scholasticism, at last Plato became so devoted to generalities that they began to determine his particulars, so devoted to ideas that they began to define or select his facts. Aristotle preaches a return to things, to the "unwithered fact of nature" and reality; he had a lusty preference for the concrete particular. . . .

Yet, he goes on to say, Aristotle took on many of the qualities of Plato so that he too remained (3:60): "a lover of abstractions and generalities, repeatedly betraying the simple fact for some speciously bedizened theory. . . ." Excess devotion to generalities can be as enslavening and stifling as excess devotion to particulars. Professors are often accused of just such a love for ideas and a lack of appreciation for the lusty particulars of reality.

Bruner's definition for categorization is significant here (1:1): "To categorize is to render discriminably different things equivalent, to group the objects and events and people around us into classes, and to respond to them in terms of their class memberships rather than their uniqueness." To render things *equivalent* is to render a set of discriminably different things (Ford, Chevrolet, Plymouth) as the kind of things (cars). In each decisioned response certain particulars or properties of cars are considered relevant and others irrelevant. This is different from the category of identity in which a variety of particulars are identified as a part of the same object. So one can slip into a car on a parking lot and note almost as if by intuition that, even though this car is like one's car, it is a wrong identity. This is so even though the identity of one's car also "changes" from day to day.

EGOCENTRISM

As concepts are attained and reality is objectified, an increasingly undistorted knowledge of self is obtained. This self-realization goes on throughout life and represents a dual progression. It permits one to penetrate deeper and deeper into the concept of self as it permits one to penetrate deeper and deeper into the fabric of reality. Egocentrism can and does appear in various forms at different levels of development from childhood through adulthood. At all levels, clarity of a conceptual-symbolic nature comes about only as one learns to see things from points of view other than his own.

The one concept of Piaget's that a great many educators have heard about is *egocentrism*. It is also perhaps the most widely misunderstood, says Flavell as he defines the concept (4:60): "It denotes a cognitive state in which the cognizer sees the world from a single point of view only—his own—but without knowledge of the existence of viewpoints or perspectives and, *a fortiori*, without awareness that he is the prisoner of his own." It is when the individual is most self-centered that he knows himself the least. The process of "knowing thyself" is a continuous one and requires repeated reconstituting at different stages in life. The fabric of reality must be objectified and penetrated deeper and deeper if the self is to be conceptualized as a distinct and separate entity which sees reality from a particular viewpoint. In short, intelligent function, when equilibrium obtains, requires a fine balance between a person and his milieu so that both a realistic (accommodation) and meaningful (assimilation) rapport is secured. As Flavell says (4:65): "cognition always begins on the margins of both self and milieu and works its way simultaneously into the inner regions of each." An example of how these two kinds of cognition do not keep this balance could be *play* and *imitation*. Play can be "riotously autistic" and allow dreams and dreamlike activity and various kinds of make-believe to be slavish and naively unrealistic. When a relative balance is maintained between assimilation and accommodation, some kind of adapted intelligence is operating. The needed logical structures are obtained only through internal equilibration and only by self-regulation and not by external imposition.

There are two basic premises upon which Piaget's prescriptions for education rest. One concerns the relation between a student and the content he is to learn. The other has to do with relations among students in the process of learning. It is the second major point—the role of social interaction—that fits into this discussion on egocentrism and leads to a highly relevant conclusion concerning teaching methods.

Over and over again Piaget stresses the paramount importance of interaction with peers as to the principal means of liberating a child from his egocentrism and as the principal means of gaining perspective. By pitting his thought against those of others and noting similarities and differences, the child can acquire the rationality and objectivity which only a multiperspective view can confer.

To the educator this means group activities, projects to be undertaken in common, planning sessions, discussions, sharing, and the like. The teacher must provide the wherewithal which the children can use to decide things by themselves. They must hypothesize and verify—experimentally in the sciences, deductively in mathematics, inductively in the social sciences.

Intelligence

Intelligence is coming to be viewed as problem-solving capacity. This capacity is based on a hierarchial organization of symbolic representations on the one hand, and information-processing strategies on the other—both deriving to a considerable degree from past experience. The interaction between an individual and his environment (accommodation and assimilation) results in continually reorganizing the structures of the mind.

Action or actions constitute the key aspect of all cognitive functioning. Overt actions (slow moving and concrete) and covert actions (internalized, mobile, abstract) involve action as the common denominator of cognitive behavior. It is no accident that as the child matures he develops a hierarchy of values and systems, but rather it is the result of the cognitive organization so far developed.

The route to symbolic functioning is characterized by a cognitive form (representational thought) that is far more encompassing than perceptual or sensory-motor representation and than iconic representation or imagery. Representational thought can recall the past, represent the present, and anticipate the future in one brief and mobile act; it can reflect on, mediate, or contemplate a course of action; it can extend its scope to the past, to the future, and to the intangible; it becomes socialized as a whole culture shares in a system of codified symbols. This suggests clearly that the symbolic function of representational thought is a general facility and basic to both private symbols (dreams, symbolic play, imitation) and social signs (words and mathematical and scientific symbols). Obviously though, language is the *system par excellence* without which thought could never become really socialized and logical. The *sine qua non* of representational thought appear to be reversibility (every logical or mathematical operation is reversible), mobile equilibrium (a system of balanced interchanges), and conservation (certain properties remain invariant in the face of certain transformations).

As the child progresses through the concrete-operations period (ages 6 to 11, or Grades 1 to 6) his cognitive behavior springs from a more coherent and intercoordinated system of actions (logical groupings) and is permeated with one or another expression of reversibility. These operations also pervade the personal-social affective acts in which he engages. His goals and values become more stabilized. Repeated interchanges with his peers cause the child to come to grips with the viewpoints and perspectives of others, and as a result he gradually moves from egocentrism to the multi-perspective reversibility of grouping structure and cultural maturity.

Beginning at about age eleven a major transition occurs. Now, instead of observations directing his thought, his thoughts direct his observations. Now he has the capacity to use the scientific method and the capacity for social reform. At the early stage the child needed to manipulate objects to produce a performance that showed logical-arithmetical properties. Now he is acquiring capacities to deal with verbal expressions of logical relationships. Now he need no longer confine his attention to the real. Now he can deal with hypotheses that may or may not be true. He can consider the form of an argument without regard to its content. When combinations are involved, all possible combinations are taken into account. He can make comparisons by varying one factor while "all other things are equal" or when "the rule of one variable" operates. This is the period when problem-solving reaches a new level as the child orients toward organized data the isolation and control of variables, the hypothetical, and towards logical justification and proof. He is orderly and organized; yet at the same time he is daring and uninhibited. His daring and sophistification are controlled and planned and reflect careful analysis and accommodation to detail. Now he is able to think about thought and see a reversal of relations between what is real and what is possible. His egocentrism takes the form of a kind of naive idealism in which he dreams of a glorious future and of transforming the world. He tends to be intemperate in this and tends to disregard the practical obstacles of the empirical world.

CONCLUSION

The principal outcome of all this is the plea that children be required to do their own learning. Teachers must present children with situations in which the children experiment by trying things out to see what happens, by manipulating things, by posing questions and seeking answers, by reconciling what they find at one time with what they find at another, and by comparing their findings with each other (7). Children must be active and required to act on material things as well as hypothetical ideas, and they should do this in social collaboration or in a group effort. This leads to a critical frame of mind as children are required to communicate with each other. Intelligent functioning in which equilibrium obtains requires a fine balance between a person and his milieu, and stresses the paramount importance of interaction, so that both a realistic and a meaningful support is secured, and so that a child can acquire the rationality and objectivity which only a multiperspective view can offer. Then he can sort particulars into a set of classes to order their diversity and form a concept.

Comprehension as a functional invariant of all reading instruction requires that from the very beginning of instruction, the reading-to-learn phase takes precedence over the learning-to-read phase. The semantic and syntactic aspects of the developmental process of learning-to-read are essentially one, precisely because of their similar directions. As a child learns to read, the instructional emphasis should rapidly shift from recognizing printed words to that of concept development. This is so because reading in all phases of the curriculum and further school work becomes a principal source of knowledge or of cognitive structures. The everyday concepts and words the child brings with him to school and builds on in his early school life are roughed and hewed from experience of the face-to-face concrete variety. The acquisition of concepts of an historical, geographical, sociological, numerical, scientific (and so on) nature evolve from a certain level of maturation of everyday concepts and a "mediated" approach which give them body and vitality.

REFERENCES

1. Bruner, Jerome S., Jacqueline J. Goodnow, and George A. Austin. *A Study of Thinking.* New York, N.Y.: John Wiley & Sons, 1956.
2. California Teachers Association. *Dimensions of Excellence in Education.* A Statement by the Commission on Educational Policy of the California Teachers Association, Bulletin No. 10. Burlingame, Cal.: California Teachers Association, 1964.
3. Durant, Will. *The Story of Philosophy.* New York: Time Inc., Book Division, 1962.
4. Flavell, John H. *The Developmental Psychology: Jean Piaget.* Princeton, N.J.: D. Van Nostrand Co., 1963.
5. *Piaget Rediscovered.* A Report of the Conference on Cognitive Studies and Curriculum Development, March 1964. Ithaca, N.Y.: School of Education, Cornell University.
6. Stauffer, Russell G. "Concept Development and Reading." *The Reading Teacher,* 19 (November 1965).
7. Stauffer, Russell G. "Reading An Experience in Inquiry." *Educational Leadership* (February (1967).

Progress Toward A Psychology of Reading

Alton L. Raygor
University of Minnesota

When we speak of a psychology, we ordinarily mean an organized body of propositions held together in some theoretical system and typically supported by some identifiable cluster of people. When we talk about the psychology of reading, we ordinarily mean the general topic of behavior. I want to argue in this paper that there is a great difference between the profitable study of reading behavior (*the* psychology) and a commitment to some organized set of hypothetical constructs (*a* psychology). I want to argue further that certain kinds of psychologizing about reading are more likely to make progress than others.

There are at least two different notions of progress in science. One is the collection of data in an effort to add to the number of significant facts at the command of the scientist. The other notion is the integration of data. Some people feel that we have not made any progress unless we can take all of the existing data and integrate it into some coherent system. Sometimes the data gatherers and the data integraters are the same people, but more frequently they are not. Unfortunately, by themselves the data gatherers tend not to advance us; and the data integraters, when they apply their integrative efforts too early in the game when data are extremely incomplete, often lead us down blind alleys. In some instances, however, an early effort at integration of a science can be very useful because it will help in dealing with the existing data even though it wll subsequently fail to explain all of the later discovered data and will become extremely limited in its utility.

The problem of the relationship between data collecting and data integrating leads us to consideration of the ultimate dilemma in an empirical science. The goal of psychological science is the most generalizable statements of the laws of behavior. Unfortunately, those questions about which the most careful and complete research can be done tend to be rather trivial because they deal with the kind of specifics which can be carefully controlled in experimental and observational studies. On the other hand, the questions in which scientists are really ultimately interested are inevitably bigger, broader, and involve more variables at one time than can ever be taken into account in one experiment, and are therefore too complex to be subject to the usual kinds of manipulative research.

Reading specialists are interested in many aspects of the reading process; and, insofar as they are interested in relatively unimportant mechanical aspects of the process such as the movements of the eye while reading, research is possible and is in fact relatively well done. However, when the reading specialist is interested in the really important questions such as "What is reading comprehension?" or "How do people do critical reading?" they find that they simply do not have available experimental designs or measurement techniques to deal with these important questions. Part of the problem is the lack of definition of terms, but even when we achieve carefully stated operational definitions of the terms involved, we are dissatisfied because by the time we have pinned down exactly what we mean by the terms, we have gotten a long way from the initial concept involved.

The behaviorist does not want to answer any questions except that of "What happens if you present a given stimulus to an organism under certain conditions?" An ontological or metaphysical type scientist who produces a "communications model" of reading comprehension stuffed with untested metaphysical assumptions about similarities between the experiences of readers and those of writers, attempts to answer the whole question, "What is reading comprehension?" We are, of course, very much dissatisfied with either of their answers. One is trivial, and one is too all-encompassing and non-testable to be of any use in predicting and controlling particular events.

While pointing fingers and implying criticism, let me quickly point out that I too have been guilty of both of these crimes, if in fact they are crimes. At an earlier National Reading Conference meeting I reported on some studies of the operant conditioning of reading rate behavior. These studies were very carefully and experimentally done and were accompanied by a refusal to interpret the data in any way other than the prediction of a given change in the behavior contingent upon the provision of a certain change in stimulus conditions. All of this was accompanied by some moralizing about the avoidance of metaphysical interpretations. I have also been on the other side of the fence as in one of the old National Reading Conference Yearbooks when talking about "Counseling in the Reading Program" and postulating something now known as "skill therapy" in which the anxiety level of college students would be reduced by giving them objective evidence of their improvement in a skill about which they had strong feelings of inadequacy. Certainly no effort was made by me at that time to carefully develop controlled operational definitions of the hypothetical constructs used (such as anxiety).

My point is that we are sometimes driven by our intellectual curiosity into data seeking, and we are sometimes driven by our compulsion to make order out of chaos by flying beyond the existing data.

The problem created by the radical empiricist who is unwilling ever to commit himself to any notion of theory is that he has nothing to guide him in his collection of data, and he is very likely to do useless, repetitious data collecting. We have had in the college reading field many people who were interested in doing research but who were not committed to any particular theoretical point of view and who produced data which told us almost nothing. In fact, if the studies were looked at very carefully, it would be demonstrated that in many cases they were inadvertently designed not to produce any knowledge. As Herbert Feigl says in an insightful article called "The Philosophical Embarrassments of Psychology" (*American Psychologist, 14*, March, 1959, pp. 115-128), "There are ways of stating and handling problems that make them 100% guaranteed insoluble." Sometimes we manage to state our problem by means of statistical questions, and sometimes we arrange these questions so that the answer is a foregone conclusion. As an illustration, knowing what we do about the size of typical standard deviations in reading test scores and the size of differences to be reasonably expected between groups, we could predict that many of the treatment studies that were designed to determine whether one method was better than another were doomed to come out with the conclusion "no significant differences" simply because that was the only conclusion that any possible data to be collected would allow. This is a pretty good example of a way of stating and handling a problem so as to make it insoluble.

We have been talking about the lack of progress and the wasted time and effort due to the unwillingness on the part of some researchers to attempt to integrate their efforts into a coherent theoretical framework. Unfortunately however, when some theorists do attempt to integrate their findings, progress is held back for other reasons. Sometimes a great deal of time and effort is wasted in the fruitless pursuit of knowledge relating to some particular kind of theoretical model. Sometimes we have theorists who construct models out of whole cloth, so to speak, never being confused by experimental data. If this were simply a waste of the time of such model builders, that would be too bad but would not be tragic for the rest of the culture. On the other hand, if people are taking such model builders seriously and are engaging in behaviors contingent on what they say as they interpret their universe, then they can cause a great deal of trouble.

The compulsion to integrate has certainly produced some of the least useful research publications in the reading field and in some cases has spawned other activities which have wasted a lot of time. Sometimes these activities were engaged in by people who take seriously what the premature theory builder says and attempt to do research on the implications of his theory. In other cases, people take the premature theory builder to task doing their own research to demonstrate the inadequacies of the theory. Both of these are a waste of time if they do not produce any new data that will subsequently be integrated into a useful formulation of the facts.

I become very impatient with the often stated notion that a theoretical view is useful if it produces research. That is true only if the research that it produces is itself useful. Otherwise, the whole thing is a waste of time.

It might be useful to comment on kinds of nonsense. There are at least two kinds of nonsense in the world. One is logical nonsense, in which language is used which does not fit the syntax. In other words, it does not conform to the standard usage and as a result does not communicate any statement at all. An example of this is the word "salad" uttered by a completely dissociated schizophrenic. That kind of nonsense does not bother us because we never take it seriously. The other kind of nonsense consists of propositions which are syntactical but are not empirically based. This is synthetic nonsense, and most inadequate theory building in science is synthetic. The propositions seem to have some meaning but are nonsense in that they are non-verifiable and cannot in any way be demonstrated. We know what the proposition means in a certain sense, and all the words are properly used and tied together in a manner that fits the usual syntax of our language, but the proposition stated is such that there is not any way for us to find out whether or not it is true.

Some of the efforts at progress in the reading field have been of the synthetic variety. Synthetic nonsense is seen in the notion of "dyslexia" as an explanatory rather than descriptive term. When people use the word dyslexia to mean a patient or subject who has a reading difficulty, it is simply a substitute term which does not cause us any particular difficulty because we sometimes know what to do with the patient who has a reading problem. The word dyslexia is sometimes also used to mean "specific reading disability" and is accompanied by the assumption that the person is "word blind" and nothing can be done for him. This kind of explanatory fiction has built in it the negation of verifiability. If it turns out that the person does respond to treatment, of course he was not dyslexic at all; and then there is not any way of demonstrating that anyone is or is not dyslexic in a way that will validate it for a useful explanatory construct.

When we look at progress in other scientific areas, we are often struck by the fact that individuals come along periodically and advance the sciences with some rather spectacular looking integrative effort. As someone once said of the biological sciences, "The Newton of the blade of grass is not yet born," thus suggesting that the kind of integration achieved by Newton (and, of course, later by Einstein) was in no danger of being immediately forthcoming, at least in plant physiology. Maybe it is appropriate for us to say that the Einstein of verbal behavior is not yet published. This raises such questions as "Are we really looking for such a great synthesizer?" and "Is it descriptive of the reading field to say that probably when many more facts are accumulated there will come along one who will utter the kind of generalization represented by $E = MC^2$ in physics?" We do not know whether or not a parallel generalization will ever appear which will in the same way synthesize everything we know about reading behavior.

From our historical perspective it is impossible to tell. We are in time where the epicyclists were in time in physics and astronomy. It must have been very easy for them to say that no single generalization would ever synthesize all of our knowledge of this vast physical universe. We know now that they were wrong, and we may be forced to the same conclusion that possibly someone will come along and neatly integrate everything we know about verbal behavior in a single generalization. There is quite a bit of evidence to support the notion that efforts to do such synthesis at this point are more likely to be diversionary than useful.

Where do we go then with a solution to our problem of progress toward a psychology of reading? If the answer is not a great synthesizer *ever* or even a partial synthesizer *soon*, then what do we do? The answer seems to me not to look very much like a solution but is nevertheless the only one available to us. It is a continuation of data collection. However, data collecting should not be indiscriminate. We already have many kinds of data, and these need not be collected any further. The 300 studies in the literature of undefined reading programs by means of test re-test data are an example of loss of thousands of hours of experimental time that might well have been given to other kinds of research.

The only kind of data we can really accept as useful is data that tell us something that we did not know before. Replications of studies using the same techniques and the same instruments, of which we know beforehand the results, give us very little possibility of anything creative happening.

On the other hand, we have to be very careful not to rule out the data that often result when people studying one topic discover significant data relative to another topic. There are many examples in the history of the natural sciences in which unexpected findings turned out to be the most useful thing the experimenter did in his entire life. The discovery of radium is one of these. The critical element in such situations is a recognition of the relevance of the data that appear. We will get new data every day, but we do not always recognize its utility for science. In fact, almost any particular fact that we did not have before is a possibly useful datum. It is probably to be predicted that the data that come from supporting or auxiliary sciences other than the behavior in which we are primarily interested are likely to be more useful. A look at the history of psychology certainly demonstrates that the major advances were not made by psychologists acting as psychologists. They tended to be made by people in other disciplines who made discoveries that turned out to be extremely useful to psychologists. We have been paying little attention to the people who are working in the fields of medicine, neuro-anatomy, neuro-physiology, biochemistry, psycho-pharmacology, and even genetics.

In conclusion, we must collect facts on the reading process and integrate them into a total picture as much as possible without commitment to "a psychology," which will limit us. However, no discussion of "progress" can stop here without some consideration of the extent to which the current state of knowledge is known and used by reading specialists.

On this topic I am afraid we cannot be very encouraged. It seems to take an inordinate amount of time for ideas to be put into the system. A look at some of the most recent self-help books on reading improvement of the type we use in college courses shows that almost all make statements relevant to the process of reading which suggest that the authors were unaware of data gathered as far back as 1900. Early research of Judd, Buswell, Dodge, Dearborn, Erdman, Huey, O'Brien, Tinker, and others, much of which was done in the 19th century, would have told these authors that people do *not* read by phrases, that the good reader makes almost as many eye fixations as there are words, that paragraphs cannot be *read* at a glance, that college students will not and cannot read their texts at high rates of response, and that if they did try to they would not be college students very long. Of course, a lot of evidence on these matters has appeared *since* 1900, too, and I do not suggest that you have to go back that far for it—simply that the "cultural lag" is that long in some cases.

In other fields within psychology whole intellectual and scientific revolutions have taken place which are not yet having much effect in reading. We seem to be a sort of depressed area or undeveloped country. In reading, as in education in general, we are trying to produce learning. Now there are people who make it a lifetime work to study learning. They have undergone a complete transformation in the past couple of decades which makes almost all of the old texts obsolete—in fact, almost humorously dated. We know so much more about the production of behavior that we can now sometimes teach pigeons, rats, whales, and other organisms more in a given length of time than we used to be able to teach children. Rats can be taught to engage in longer strings of behavior tasks than were expected of four-and five-year-old children on the old Stanford Binet.

Practically none of these advances have been applied in reading, except to a very limited degree in the area of programmed instruction. Psychology has come a long way from the days when William James remarked that it was not a science at all but "only the hope of a science," a remark which today might well apply to the psychology of reading. If this situation is to be remedied, if progress is to be made toward a sound psychology of reading, then this gap between reading and the other areas within psychology must be closed. For such a remedy, however, even the most basic ingredients are still missing. I am speaking quite specifically of the lack of a sufficient pool of scientific talent to relate psychology to reading. For the present, every effort possible should be made to set up communications with *other* scientists. Graduate students, for example, should be encouraged to take courses in learning, psychologists should be invited to speak at reading staff meetings and conventions, etc. When these steps have been taken, then perhaps we shall be able to speak more hopefully of progress toward a psychology of reading.

REFERENCE

Feigl, Herbert, "Philosophical Embarrassments of Psychology," *American Psychologist*, March, 1959, 14.

Reading Technology

George D. Spache

University of Florida

As defined in *Webster's New Collegiate Dictionary*, technology is simply applied science or a technical method of achieving a practical purpose. With so broad a definition I could conceivably attempt to cover all facets of practical methods and devices in our educational system. But of course I will not. Here I shall concern myself only with a review of the present and future applications of certain scientific devices and theories to instruction in reading. As you will notice, these efforts touch upon a number of facets of the field, including curriculum, instructional materials, methodology, and analysis of the reading process itself.

A number of the applications of technology to reading involve what might be called computer-assisted instruction. I shall attempt to enumerate and describe briefly a number of these.

1. Experimentation has been done under the direction of O. K. Moore with a device which translates writing or typing into sound as well as into visual symbols. The device is now available for purchase although research with it is not very dramatic or definitive. As you recall, the "talking typewriter," as it is sometimes called, was used to introduce pre-school children to the act of reading and writing with some success. In all probability a future version of this or some similar device may be used to translate sound into printed symbols. Such a translation is now possible, I understand, with the most modern computers but, of course, the application in the average school situation is still unrealized.

2. I need not dwell upon another large area of technological advance, mainly that of programmed instructions. At the present stage of development of computer-assisted instruction with programmed materials it appears that it is possible for the training device to note the errors of the individual to tabulate them, to chose corrective steps, and to reinstruct the student. Thus conceivably a computer could be employed in instruction in such skills as word recognition with the capacities of doing most of the instruction that a teacher might attempt.

3. A large number of computer-based studies have curricular implications. Some of these involve letter counts in a large or a small portion of our language. One type of such study might be intended to determine the redundancy of the sounds of letters and of letter combinations. There would be implications here, when a sampling is adequate, for the teaching of phonics and phonics rules. Such a study might also reveal the desirable teaching sequence in phonics instruction, as well as the true consistency of the tendencies towards certain

uses of sounds and their graphic representation (2). Another group of studies of the letter count type is under way to determine the frequency of letter sequences or of orthographic arrangements. There are obvious implications here for instruction in spelling and in spelling rules. Hanna and Hanna have recently completed a study of this type (6). An interesting observation coming out of these studies is that the length of word is probably one of the primary determinants of spelling difficulty, not irregularity, phonemically speaking—a distinction which many linguistic phonologists might well note.

A third group of studies is under way to determine the relationship of the length of word and the breadth and depth of its meanings. Preliminary studies, for example, indicate that words of four or fewer letters are more difficult in variety of meanings than longer words. Thus it appears that length of word and perhaps irregularity, phonemically speaking, are negatively related to the difficulty of reading a word, again a finding in counterdistinction to the impressions of some linguists. These studies should help to clarify the differences between the processes of reading and spelling for those who are designing reading instructional materials based upon spelling patterns.

Other studies are attempting to determine the relationships between letter sequences and their pronouncation and the validity of the rules which have been offered for such combinations. For example, we have assumed for a long time that a vowel-consonant combination contains a short vowel sound almost always, that a consonant-vowel-consonant combination represents a short sound in most monosyllables and polysyllabic words. Studies such as these should enable us to determine first, the redundancy of these combinations; second, the consistency; third, the implications of these facts for sequential teaching and the like.

The second large area in which computers are assisting curriculum and other educational studies is those studies concerned with the frequency of occurrence of sentence patterns at various ages in written material and in speech. Perhaps these studies will clarify the fact that these two media, speaking and reading, are not parallel in their use of sentence patterns or in many other ways. The assumption that reading is simply a translating of the representative graphemes and is completely analogous or based upon the oral language that the child has experienced will I think be disproven. These studies may result in some implications for the preparation of textual materials dealing with sentence pattern. We should learn, for example, what kind of training we should give small children entering school, what other type of training might be desirable for bilingual children or foreign-born or those with non-standard English. Should we provide experience in dealing with a certain group of patterns first and then later introduce others or, as the linguists are saying, deal with a wide variety of sentence patterns from the very beginning? These studies, of course, all depend upon a working definition of a sentence. Believe it or not, there is no uniform definition of such an utterance, and various studies are approaching the study of sentence patterns with unique descriptions of a sentence. Some linguists, for example, consider a sentence to be everything a child says in a stream of words until he reaches an obvious juncture (or loses his breath). Others are attempting to define the phonological unit as a relatively complete utterance with the grammatical elements obviously embedded in it or attached to it.

These computer-assisted studies of language itself may well be expanded to include attempts to determine the redundancy and the consistency of structural units such as roots and affixes. We must sooner or later learn really which are frequent, consistent in meaning, and functional in reading materials at different levels or in different subject-matter areas. This type of research is essential to formulate generalizations regarding their historical development, and the spelling and the meaning changes which have occurred. Informal research has of course attempted to cover this, but we anticipate that the computer-assisted research will give more definitive implications for curriculum planning in this area. Other studies of course will be necessary to determine the pragmatism of teaching these structural units and the techniques.

Although there have been a number of such studies earlier, some of which have been reported at this conference in other years, there is the possibility that computers may be employed to determine objectively the influence of semantic constraints upon the possibility of deriving meaning of an unknown word. It may be possible to make a careful analysis of these constraints, their characteristics, and thus to make our instruction in how to derive meaning from context more realistic. If nothing else, the simulation of the process of using context may lead us to recognize what types of analysis we should be emphasizing in our instruction.

Similar studies of redundancy, structural units, sentence patterns and the like might well be undertaken in the future in the languages commonly taught in our modern language programs. Certainly this is a whole area which would lend itself to the application of some scientific facts and principles.

It is possible to simulate the development of language or the encoding-decoding process—that is, to simulate thinking as it is implied in information theory, by the aid of computers. It is desirable for us to discover how an individual thinks and whether this is in keeping with any of the half-a-dozen theories of thinking that are currently offered. We should try to discover how language is processed, recoded, chunked, and the like as the information theory group suggest. There should be additional studies of the roles of semantic and syntactic words and units. Preliminary studies such as several of those offered in earlier conferences of this type have marked relevance for these approaches but probably should be supplemented by large-scale studies with the aid of technological devices. An example of this type of approach is included in a recent book by Tomkins and Messick which offers chapters on the simulation of cognition, language, and perception based upon computer analyses (9). The process itself of learning to read as well as that involved in arithmetic learning may be analyzed step-by-step by computer use. Perhaps we will discover truly what is the role of letter discrimination, of word discrimination, of sound discrimination and therefore the best type of pre-reading and early reading training in these facets. We may hope to discover the nature of the reading or arithmetic learning process at different ages or stages by this type of approach. Finally we may be able to determine after the fashion of Piaget or Guilford or some others, what the process of comprehension is, what its stages are, and whether or not it is really possible to modify the strategies of thinking which chracterize this obscure process. At the moment there are two recent studies which follow this particular avenue of research. One conducted by Duncan Hansen and Theodore S. Rogers at Stanford University made an analysis of the reading errors of five-year-olds in an attempt to formulate programmatic steps simulating an initial reading experience (7). A second study by Green and Henderson is adapting the O. K. Moore teaching technique in an effort to discriminate between an analytic and a synthetic approach to early word recognition. Unlike the talking typewriter which reproduces a single letter when a key is depressed, the typewriter will respond with an entire word. This latter type of experience is supposed to represent the whole-word approach to learning to read as these authors think we are applying it (5).

A final illustration of the use of technological devices in advancing educational efforts is present in the study of readability measures and formulas. Danielson and Bryan have recently completed a computer count of letters probably of word length as a measure of readability (3). I am sure you are quite familiar with the large scale study conducted by Bormuth which involved a host of measures of linguistic units by computer-assistance in the effort of testing old readability measures and evolving some new ones (1). In the field of information retrieval, education has lagged somewhat behind other professional disciplines. At the moment, however, I am happy to say that it appears there will be a real effort in the application of information retrieval techniques to a number of facets of education and particularly to the field of reading. An informational retrieval center in the field of reading has been established by the Office of Education at Indiana University. It will be called ERIC CRIER which stands for Educational Research Information Center-Center for Retrieval of Information and Evaluation in Reading. Drs. Edward Summers, Theodore Clymer and Leo Fay will be active in the direction of this center. Within a short time it is hoped that a large portion of material in reading will have been abstracted, committed to the memory of computers, and available for call by any of us who long to be researchers. Reproduction of abstracts by microfiche, some samples of which I have here, and by Xerox or similar reproducing devices will be possible. Thus at relatively little expense duplicates of sgnificant research will be readily available to the reading personnel.

Perhaps we can proceed from this rather boringly long list of applications of technology to the consideration of the possible developments of the future and of some of the dangers which have been expressed regarding this development by some writers. A marked trend toward combinations of "hardware" and "software" distributors is currently visible. We see that the Columbia Broadcasting Company has acquired Holt, Rinehart and Winston; the Radio Corporation which is a part of the National Broadcasting Company has merged with Random House; International Telephone and Telegraph is attempting to purchase the American Broadcasting Company which in turn recently absorbed Howard W. Sams Publishing House. The American Book Company has been acquired by Litton Industries. Similarly Time, Incorporated, and General Electric have purchased the old Silver Burdett Company and formed the new General Learning Corporation; *Newsweek* and Minnesota Mining and Manufacturing Corporation have joined forces; Sylvania, a large electronics house, has affiliated with *Reader's Digest;* Raytheon has purchased D. C. Heath; and finally the Xerox Corporation has combined three former educational houses including American Education Publications, publishers of "My Weekly Reader" (4). Many of the amalgamation tendencies have arisen from the fact that the hardware manufacturers have failed to seize the market or perhaps to realize the market for their materials which they had hoped. It is obvious that they think the new combinations of hardware plus textual and other kinds of material will be more successful. Some see some real dangers for our educational system in their suspicions of manipulation by these industrial giants. In fact, at a recent congressional committee hearing some of the corporation experts testifying were asked whether they saw any danger to our educational system from domination by these large, powerful companies. The inquiry was never answered. The facilities as well as the large capital resources of these new combines may take either tack. It is conceivable that the hardware people will bring to us more intelligent use of such instruments as closed-ciricuit television, instantaneous reproduction of textual materials, less expensive computers to teach, to test and perhaps to think for us, as well as a host of other devices. It is quite possible that these industrial managements will finally succeed in conveying an instructional systems concept to educators. By an instructional systems concept I mean an analysis of system components, a search for the most functional characteristics of the different resources which compose the school education, and the introduction of new and advanced techniques to carry out these goals. This instructional systems concept would have to consider the learner characteristics and thus have some trend towards individualized instruction as well as its obvious impact upon mass instruction. The instructional systems would certainly have to include some study of teacher characteristics, instructional methodology, as well as administrative problems. Personally, we see no great danger to the freedom of education in this introduction of advanced management and business techniques to educational work.

There is no doubt that these new developments will have a sizable effect upon educational practices no matter what form the advances take. However, there are many of us who are quite cognizant of the slowness of educational change. A comment on this by Paul R. Mort is quite appropriate: (8)

> After an invention which is destined to spread throughout the school appears, fifteen years elapse before it is found in three percent of the school systems. . . . an additional twenty years usually suffices for an almost complete diffusion in the area the size of an average state. There are indications that the rate of spread throughout the nation is not much slower . . . school systems do not seem to be geared to the fact that the knowledge of available inventions is necessary if they are to improve and that the individuals operating the schools must master this knowledge.

There is certainly a tremendous inertia in the development of new advances in techniques in our educational systems. Think for a moment, if you will, of what was probably the first technological device used in our American schools, the Hornbook. The use of this began earlier than anyone's records seem to be able to establish and persisted through the 18th century long after other instructional materials were readily available. Perhaps one of the reasons for the persistence of this first technological instrument was the fact that some versions were made in gingerbread and thus could be consumed as a reward for successful naming of the letters of the alphabet. Apparently the concept of immediate reinforcement in a concrete fashion is not a new one. However, some undoubtedly fear that our educational system will become a technocracy, a society ruled by technicians. Mort's observations regarding the speed of adoption of new devices in schools probably indicate that the impact of the new technology is not likely to result in a technocratic takeover of education by the "hardware" and "software" combines.

1. Bormuth, John R. *Relationships Between Selected Language Variable and Comprehension Ability and Difficulty*. Cooperative Research Project, No. 2082, Office of Education, Department of Health, Education and Welfare, 1964.
2. Carterette, Edward C. and Jones, Margaret Hubbard. "Redundancy in Children's Texts," *Science*, June 21, 1963, 140:1309-1311.
3. Danielson, W. A. and Bryan, S.D. "Computer Automation of Two Readability Formulas," *Journalism Quarterly*, 39:201-206.
4. Friedman, Saul. "The Knowledge Industry is Luring Big Companies," *St. Petersburg Times*, October 2, 1966, p. 4-D.

5. Green, Donald Ross and Henderson, Richard L. *A Comparison of Two Approaches to Initial Reading Instruction Using Computer Assisted Instruction.* Atlanta: Division of Teacher Education, Emory University, 1966.
6. Hanna, Paul R. and Jean S. *Phoneme-Grapheme Relationships Basic to Cues for Improvement of Spelling.* Stanford University, Stanford, California.
7. Hansen, Duncan and Rogers, Theodore S. *Institute for Mathematical Studies in the Social Sciences.* Stanford: Stanford University, 1966.
8. Mort, Paul R. "Educational Adaptability" as quoted in *Administration for Adaptability,* edited by Donald H. Ross, New York: Metropolitan School Study Council, 1958, pp. 32-33.
9. Tomkins, Sylvan S. and Messick, Samuel. *Computer Simulation of Personality: Frontier of Psychological Theory.* New York: Wiley, 1963.

The Interjacent Student

Robert E. Mills

Director, The Mills School, Ft. Lauderdale, Fla.

What is the "interjacent student?" What have we done about him? And what should we do about him?

The term "interjacent" is a relatively new label for a particular segment of the school population. Traditionally, such a student has had other descriptive labels including "brat, trouble-maker, school drop-out, retarded, not-with-it, and problem child." However, these redundant terms are comprehensible by lay parents. Historically, we educators and psychologists have enjoyed coining new terminology in order to provide a greater need for us to do more explaining. I suppose this makes us needed!

Edgar A. Doll[1] provides a meaningful diagnostic description that has become acceptable to the professional worker:

> The disabilities with which we are here concerned are those which are obscurely marginal. . . . This is the in-between child who is neither fully normal in all respects nor severely abnormal in many. His near-normality leads his parents, teachers and other observers to expect fully adequate performance without recognizing his restricted capability for such adequacy. . . .
>
> We define the interjacent child as who is in-between, marginal or weak but not altogether deficient in his aptitudes and the use of these aptitudes or successful learning. The child has weaknesses or vagaries of receptive and/or expressive experience. . . . These hazy defects and deficiencies are apparent in various modalities: sensory, neuromuscular, intellectual, social and other. Even their professional assessment is difficult because the disabilities fall so little, so oddly, or so unexpectedly short of normality. Moreover the interlacing of these abilities sometimes produces unhappy consequences for various areas of learning which controvene optimistic assessment. Further puzzlement is aroused by the intermittent nature of his disabilities in many instances.

This gamut of symptomotology poses a challenge in differential diagnosis in the quantification of degrees of impairment in the various disabilities to be ferreted out in the assessment. To the naive and redundant diagnostician or to the hard-shelled school of any thought, any diagnosis provides pitfalls. That is to say, if the professional has a mixed-dominance "dyslexic" mind set, he will be able to look and find material in these interjacents which will not only substantiate, but reinforce his philosophy that the student's reading disability and hyperactivity is caused by CNS impairment, and program accordingly.

If the diagnostician does not expeditiously assign a label of "neurophrenia, dyslexia, mixed dominance, special learning disability," or whatever, he will most often be rewarded with clearer insights into the multiple aspects of the dysfunctioning. An eletic view is essential!

With strong evidence of neuropathology present in the test protocol, the clinician will observe through testing, observation, and case data other significant areas of distress any one of which could pose problems of ineffectual learning and adjustment for the student. And an all-too-often "This is it!" premature conclusion for the examiner can result at each stage of this analysis. If the study is complete for the interjacent diagnosis, typical findings would include:

(1) Intellectual dysfunctioning. Assessment with the WISC or Binet will generally reveal receptive and expressive incongruities as shown by inter-and intra-test variability. "Intellectual functioning typically reveals marked retardation or disharmony. This is apparent in both verbal and non-verbal test tasks as well as in abstract versus concrete performances. Yet the observations suggest interferences to expression rather than essential mental deficiency." In our work with the interjacent, we have typically found the measurement of his intelligence to be in the full-scale range from 65 to 95.

In test re-test longtitudinal studies with the usually acceptable clinical instruments where the test reliability meets professional demands, the disparity has been found to be as great as 20 to 30 points. Therefore, the very measurement of intellect becomes an unpredictable, often incongruous, frustrating situation for the examiner.

(2) Personality or emotional problems. "Behavior is 'organically driven' with manifestations of hyperactivity, irrelevance, and anxiety. The overtones are those of apparent neurotic persevation." He is immaturely dependent and cockily independent. He asks for structure and simultaneously sets about to show you his own omnipotence.

It is possible to predict only one thing about his behavior: it will be inconsistent. The patterns of behavior range from the anxious, aggressive, destructive to the withdrawn, lethargic or autistic. Any combination of these may appear with a single personality constellation. To the teacher, he is inattentive, easily distractible, doesn't follow directions, doesn't operate in a group situation and manipulates in a one-to-one situation. The parents feel he is a catalyst in the home, won't listen, "isn't like other children," and can often set parents at odds with each other. The examiner will find him highly distractible but at the same time testing will show significant indications of perservative behavior. His memory will be uncertain, and his effort "whimsical and willful."

(3) Sensorium weaknesses. Although visual acuity measures within normal expectancy, visual perception is often disturbed. Parents, in their search to pinpoint the trouble, are often perplexed with the various conflicting reports or prescriptions by the opthamologist or optometrist. An awareness of stimuli in the visual field is often lacking or dulled and yet, the selective perception of minute details further confuses the study.

Auditory loss is suspected by parents or teachers based on overt behaviors; consequently hearing often becomes a reason for referral.

However, here again, auditory acuity is generally normal, "except perhaps for weakness of pitch discrimination or tonal perception with obscurity of meaning. This suggests a sensory component for the developmental language deficiency."

(4) Kinetic facility disturbance. Interjacent can best be described in lay terms, as "awkward and clumsy." Unlike the CP, this lack of appropriate control in the neuromuscular area is not immediately observable by a cursory check. Heel-to-toe walking, hopping, balancing on one foot, precision in hand manipulation and movement tasks do indicate developmental lags or deficiencies.

(5) Language and speech factors. "Language is developmentally retarded, sometimes amounting to developmental aphasia, and shows both tonal and propositional weakness, as well as poor syntactical formulation and dearth of vocabulary." Oftentimes information and vocabulary subtests on the WISC will be similar to the culturally disadvantaged although there tends to be more intra-test scatter.

Speech patterns are distorted by difficulty in articulation, nasalness, inappropriate volume and pitch, as well as inflection difficulties in oral reading and speech.

(6) Social inadequacies. Because of the above described patterns of unpredictable abilities, disabilities, and overt behaviors, it is easily understandable why his peers have difficulty with him in attempting play, work or friendships. An everchanging array of "friends and enemies" is the interjacent's typical social status.

Because of the subtle level of the multiple disabilities typical of our interjacents, the appeal here is for an awareness by the diagnostician and clinician to enter the assessment and educational or remedial programming with broadmindedness and the "big-total look." Too often have we found this child given a specific label and misplaced accordingly in special groups of the endogenous mentally defective, the hard of hearing, or the emotionally disturbed. Partial or incomplete diagnosis is highly dangerous at all times but it is the particular pit-fall of the interjacent.

The near-normalcy of the interjacent causes the people in his world to expect normal functioning. Because he cannot measure up to such a standard, he is frustrated and is frustrating. Three hours of remedial reading or speech therapy per week are not the answer. Correct diagnosis and wise dynamic curricular planning on an individual basis are our only hopes to avoid the educational, emotional, and social disasters of the past. These students have potential but whether we as clinicians have the willingness or perhaps the potential to help the interjacent realize his, remains for the future to effect.

REFERENCES

1. Doll, Edgar A., "Education and the Interjacent Child," The Vanguard School, Haverford, Pennsylvania, Jan. 30, 1965.

2. Doll, Edgar A., "Behavior Syndromes of CNS Impairment," Reprint, Devereux Schools, 1953.
3. Mills, Robert E., "The Interjacent Student in Junior High School," an address to the Florida Reading Association, Daytona Beach, Florida, Nov. 11, 1966.
4. Money, John, ed., *Reading Disability, Progress and Research Needs in Dyslexia*, The John Hopkins Press, Baltimore, Maryland, 1962.

Methods of Teaching Braille to the Blind

Richard H. Bloomer
University of Connecticut
and
Marie Anchel and Bernard V. Krebs
The Jewish Guild for the Blind

There are essentially two kinds of blind individuals—people who have been blind from birth (congenitally blind), and those who have lost their sight either through accident or illness (adventitial blind). Blindness appears to have very often rather severe effects upon the emotional balance of the person afflicted.

The congenitally blind individual, from the point of view of learning a language, has no visual referents, although he may often use visual words. Visual words tend to be less meaningful and more of a verbal habit pattern than for sighted individuals.

The congenitally blind individual also tends to have considerably more insecurity about his movement through his environment and much more time and effort must be spent in teaching him to operate in his physical environment than for the sighted individual.

A third characteristic of the congenitally blind is the inability to understand the sighted individual. There is often a deep-seated feeling of insecurity which comes from the contrast between the sighted and the blind individual. The blind, for instance, must remember the placement of everything, or must feel his way to find an object. The sighted person, in contrast, needs only to look to find things. Congenitally blind people therefore tend to feel that the sighted individual is omniscient and that they themselves are inferior.

The adventitial have similar kinds of problems; having been at one time able to see, and having this capacity removed, they are often filled with a sense of depression and a concomitant sense of inferiority.

Both of these groups, because of increased difficulty to operate in a sightless world, because of the sense of inferiority, tend to become dependent upon other people. Blind people do not typically tend to be self-motivating.

There are several methods by which blind people receive information. Most common of these, of course, are television, radio, and conversation. For those who are interested in the material which is available in printed form, talking books, records, and compressed speech are available, and human readers are often used, in addition to the system of reading braille. The problem with the majority of these techniques for ingesting information is that they also increase the dependence of the blind person. He must have someone else or some machine read the material to him. The system of braille reading and writing is the only technique whereby the blind person can become independent; where he can, for instance, take notes and read them back, or operate in any functional capacity in the society which requires writing.

THE BRAILLE SYSTEM

Braille is not a simple system. Of the blind people who use some form of reading—that is, either an individual who reads to them, or a talking book, or braille—only eight percent of the population use braille reading, in spite of the fact that 27 percent of the blind people report that they can read braille. This indicates the difficulty of the system is such that, even though they can read braille, they prefer to use a more dependent method of reading.

Part of this problem appears to be the difficulty of braille in and of itself. A second part has to do with teaching methodology.

The braille cell itself consists of six spaces, two columns of three each, occupying a space approximately three-eighths of an inch by a quarter of an inch. The letters are designated by patterns by raised dots in one or several of the spaces. Each braille pattern of dots represents both a word or a contraction, and a letter which presents much greater difficulty than the usual English orthographic form. The braille alphabet is built in sequence; thus, in English orthography, the English letters *a, b, c, d, e,* etc. are quite distinguishable from one another. However, in braille, the sequence is such that there is only one dot difference between each successive letter, meaning that successive letters are very difficult to tell apart.

Braille itself is usually taught by an alphabet method, first teaching the alphabet in letter sequence—*a, b, c,* etc.—and then applying this to words. Because the alphabetic sequence is so very difficult for an individual to discriminate, the initial presentation of the material is one of the most difficult problems the individual has in reading.

An additional problem in teaching braille reading is the large number of contractions. A contraction is a letter or a group of letters which stand for, or are shortened forms of, words or parts of words. Most of the letters of the alphabet are also contractions for words. In addition, there are contractions for various blends, such as *st,* and *ch,* and contractions for parts of words, such as *ar.* In order to read braille, therefore, the individual must learn a large number of contractions and the rules which govern their use. While this system is relatively economic in terms of space on the braille page, the system increases the complexity of reading braille. In addition, the braille reader who is going to learn to type English orthography must learn two spellings for many words: the contracted form, and the English orthographic form.

The actual reading materials that are used with the blind are translations of sighted readers. Any of these at the early levels involve the picture-word method, which means the reading has practically no significance without the ability to appreciate the picture involved. Further, readers very often use as their initial words visual reference, like: "Oh, oh, oh!," "Look! Look! Look!," "See Jane," etc., and these are completely meaningless to the congenitally blind reader.

The programs for the congenitally and adventitial blind are built on a progressive part system. However, because of the differences in the two populations, there are some significant differences in the programs.

The program for the adventitial blind is not so complex. This individual can already read English, and the adventitial program is basically a self-instructional system for learning to translate English symbols into braille symbols.

It should be noted that there is no exception to teaching braille by a phonetic method. It is impossible because of the nature of the reading method to develop sight word techniques. This, of course, limits the speed at which braille can be read. Sixty to 80 words per minute is considered good speed.

THE READING PROGRAM FOR THE CONGENITALLY BLIND

Readiness. There are many concepts which must be developed in a readiness program for the congenitally blind. The first of these is the concept of a single word. The congenitally blind person typically is familiar with continuous discourse and has never contacted visual representations of words. His concept of a word is more likely to be the sentence, and this concept must be shaped.

A second aspect of the readiness program includes concepts of number and position, for without the ability to count to at least six, and notions of right-left, top-bottom-middle, first-last, etc., the child will be unable to learn the braille system.

A third aspect of readiness is tactual discrimination involving soft-hard, smooth-rough, and other sets of tactile concepts; in addition, fine discrimination exercises with the fingers are necessary to sensitize the child for discrimination of the braille cell dots. It should be noted that the blind do not have compensationally accurate touch or hearing; these senses must be trained to substitute for sight just as they may be trained in any sighted person.

Fourthly, special care must be taken in developing meanings through language and through the tactile senses. Blind individuals need a great deal of tangible stimuli to develop sufficient meanings of words to be able to take advantage of opportunities to read.

The following are the characteristics of the organization of the reading program for the congenitally blind:

1. Each successive letter is taught as a separate unit. Each succeeding unit is as different in sound and shape from the preceding unit

as possible. The learner does not progress from one unit to the next until he has learned the first unit well; for example,

a	*t*	*b*	*m*
o.	.o	o	oo
..	oo	o	o
..	o	..	o

2. All the words which are taught in the initial phases are either
a) phonetically consistent in that they can be transcribed directly into sound from braille orthography; or
b) the word which is specifically related to the single occurrence of the letter in the braille system, or the contraction (for example, *t*=that; *b*=but; *m*=more; etc.).

Phonetical consistency means the assignment of a single sound to each letter of the alphabet. This would be the common consonant sound and the short vowel sound in this instance. Words taught in the initial sequence are comprised of short vowel sounds, and common consonant sounds. From this initial series, long *a, e, i,* etc., or *sh, th, ch, etc.,* will be excluded. These are taught later in the series, once the learner has developed some stability with the short vowel phonics. When the long vowels are presented, they too are presented in their regular situations, and deviations which produce the long vowel sounds are excluded.

3. The program, in its early stages, also is limited to words which are orthographically consistent English. Exception is made for the contractions which are words represented by the single braille letters of the alphabet. Thus, in the braille program for the congenitally blind, the early words are spelled in English and in braille in the same form. Contractions for single words which are multiple letters (e.g., braille "dcv" for English "deceive"), or multiple English
o
letters represented by a single braille symbol (e.g., oo for "ou," or
o
o
o for "ar") are not presented until a later contraction lesson. Thus,
o
the word "tar," which is phonetically consistent, will not be taught in the lesson dealing with *r,* but much later when the contraction *ar* is presented, even though the word "tar" is phonetically consistent.

4. Each successive letter in the system is combined with the preceding letters to produce a progressive part organization such that new meaningful words are developed: e.g., *a* plus *t*=*at;* plus *b*=*bat;* or plus *m*=*mat, tam,* etc.

5. Originally, the learner is carefully guided in sounding out new words. As the program progresses, the learner is led to sound out independently by being taught the letter and then being allowed to

sound out new words which he has not otherwise met except as meaningful words.

6. The material presents first the very simple letter, then small words, phrases, sentences, and finally stories. All of these in the original sequence are phonetically consistent to assist the learner to be an independent reader.

7. Writing on the braille writer is included with the learning program from the outset. The teacher will dictate words, letters and later sentences for the learner to write.

8. The materials are geared to the conceptualization of the visually handicapped in that dependence upon visual reference will be reduced until later in the program. It must be recognized that the visually handicapped use and understand visual reference; however, because of the lack of tangibility of these references, such concepts are introduced later in the program.

9. With the exception of the contractions which are related specifically to the initial letters of the alphabet, all other contractions are presented later in the sequence. Each contraction is presented separately and again is maximally distinguishable in shape from its predecessors and successors. The single-letter contractions are presented first, followed by double-letter and triple-letter contractions, and later the few multiple-letter contractions.

Application. The braille program for the congenitally blind has been designed to function with multiply handicapped children at The Guild School. These children, in addition to their visual handicap, are also emotionally disturbed and mentally retarded. It was felt that, if this group could be taught to read by means of the program, the program would be functional for nearly any other group of children. Children at The Guild School have been taught by means of the program during its construction phase. The method appears to have been successful where other methods have failed. One child, 12 years old, had been subjected to attempts to teach braille for five years with no success at all. After eight months with the program, the child is able to read simple material. One problem in determining the quality of any braille program is the lack of standardized tests in the area. However, the child in question has moved from no reading ability at all to the ability to read third-grade readers translated into braille.

The braille program for the adventitial blind assumes an ability on the part of the individual to read English orthography before becoming blind. It therefore represents a translation of English orthography into braille. As such, the program is basically self-instructional. A large raised letter is given at the beginning of each unit. This is the letter which will be taught. The method also implies a progressive part technique, whereby one letter is presented at each unit. Once the individual learns to translate the letter into the braille

201

character, it is combined with other characters to form words. Contractions are signalled for the learner by placing them in a raised box. Thus, the individual can read the English orthography in braille, and then learn from this the appropriate contraction to be used.

Both of these programs are to be experimented with in the next academic year. The program for the congenitally blind will be given to blind children in a normal school setting. The program for the adventitial blind is to be used with adults who come to various agencies for rehabilitation.

It should be noted that the use for these programs is rapidly diminishing. With increase in medical knowledge and medical skill, both the number of congenitally blind infants and the number of adventitial blind adults is decreasing markedly. Although blindness will always be with us, it is pleasant to think its incidence is decreasing.

The Effectiveness of Group Guidance on Reading Improvement of Junior College Freshmen

Margaret L. Craig
Mississippi College

INTRODUCTION

There are so many unanswered questions. To the inquisitive, dauntless seeker of knowledge, research provides an avenue to satisfy, if only temporarily, this craving and compelling force that drives us on in our search for answers. We must continue with sheer determination and unfailing confidence that eventually some of these questions will be answered. We may, through sheer pragmatic effort, arrive at some of these answers.

Perhaps because I am personality-oriented rather than skills oriented, I felt that students who had difficulty succeeding in college because of reading difficulties needed something more than skills drill. This is also borne out by Dr. George Spache, who, in "Reading Improvement as a Counseling Procedure," predicts a decreasing use of mechanistic and drill procedures accompanied by an increasing dependence upon counseling and psychotherapeutic techniques (5:125-130). Ruth Strang, another of our authorities, contends that guidance and reading have some commonality. In her article, "The Relation of Guidance to the Teaching of Reading," in a current issue of *The Personnel and Guidance Journal*, she suggests that there are advantages in preparing dual specialists—counselors who have acquired competence in working with reading problems and reading specialists and consultants who have competence in personnel work. (6:831).

This philosophy, plus the fact that I am a very curious woman, led me to make the study that I want to briefly share with you in the next few moments.

NEED FOR THE STUDY

For many students, the goal of a college education and proper training for a life's vocation is thwarted or completely unattainable unless the student is provided remedial and *personnel* services as a supplement to his academic training.

Among the most important of these services are the guidance or personnel services and reading improvement instruction. College freshmen usually find quite an adjustment to make in their academic world. They find more demands on intellectual skills than in their past educational experiences and reading ability becomes of paramount importance (2:51-54). Maurice Lee (3:20-32) concluded from a study of a freshmen reading improvement course at Morgan State College that 80 to 90 per cent of all assigned work in college courses required reading.

College upperclassmen with low reading scores have been found to earn lower grades and to have a higher dropout rate due to academic failure than able readers.

In a study of the role that reading plays in the educational experience of a group of students at Michigan State University, the data revealed that low-ability readers tend to repeat more courses, to make lower grades in the general education courses, and to find it necessary to change majors more frequently than the high-ability readers (1:6).

Anxiety and tension are often the cause and the result of these difficulties (4:250). The student needs a clearer perspective and assistance in alleviating frustrating forces before he can fully master these skills. Not only are development of skills and mastery of subject-matter the only learning tasks. One very important function of education is to assist the student to know and understand who he is, what he is doing, and why (7:6).

Guidance is concerned with assisting the students to develop to levels of understanding which will assist them to grow to their fullest academic potential.

It was felt that through a group-centered approach to guidance the individual could explore the world in which he lives and search for a place within this world which would meet his needs. Through free expression and an interrelationship with peers experiencing some of the same difficulties, perhaps some of these anxieties and conflicts might be removed, thereby freeing the individual to experience significant reading improvement.

THE STUDY

The study was limited to freshmen students enrolled in the course, "Improvement of Reading," during the second semester, 1964-65, at Hinds Junior College, Raymond, Mississippi. This institution serves the counties of Hinds, Rankin, and Warren. Hinds Junior College has a present enrollment of over 1,800 students. The general purpose of this College is to provide a two-year college program to serve the educational needs of this area. These needs now include the teaching and guiding of students who intend to transfer to senior colleges to study for an academic degree and the teaching and guiding of terminal students in academic, vocational, and technical fields.

Hinds Junior College requires students scoring below the 50th percentile on the reading section of the Cooperative Test to enroll for one semester in a reading improvement course. This course is designed to meet the needs of college students who experience weaknesses in reading. The primary aim is improvement of reading proficiency. Specifically, the course is designed to assist college students in the development of the following reading techniques: (1) acquisition of a larger vocabulary, (2) development of an efficient reading rate, (3) improvement of comprehension, (4) skimming, (5) concentration, (6) critical reading, (7) adjusting rate to purpose, (8) overcoming vocalization, (9) oral communication, (10) improvement of reading in various subject-matter areas, (11) word recognition skills, and (12) correct eye movements.

Because the remedial reading course is required of all students who score below the 50th percentile on the reading section of the *Cooperative Test*, these students share a common problem. Since reading affects almost every aspect of academic achievement, a reading handicap would seem to create personal disorientation.

The course in reading is offered every semester and meets for one hour three days per week. Students are granted one hour of credit upon completion of the course. During the period covered by this study, five sections of the course were offered. Senior colleges in Mississippi accept the transfer of this credit. At present only one instructor, a reading specialist, is employed to conduct this course.

As an initial step in an attempt to study the effectiveness of group guidance procedures on reading improvement of these students, the five sections of the course, Improvement of Reading, were arbitrarily numbered Sections I, II, III, IV, and V.

Random sampling of the original five sections resulted in Sections I and III being selected to participate in the study. Sections I and III meet respectively from 8:00 to 9:00 and 11:00 to 12:00 on Monday, Wednesday, and Friday of each week. Original enrollment of these two classes numbered forty-one. From Section I nine subjects were randomly selected to comprise the experimental group and nine to comprise the control group. The same procedure was used to select subjects from Section III, with nine subjects each in a control and in an experimental group. As a result, the total number of subjects studied in the experimental groups and control groups was thirty-six.

As a result of scheduling conflicts, many of the subjects in the experimental groups were unable to arrange time for a group guidance period. Since an adequate sampling would not have been available if only those students participated who could have met at the same time, it was necessary for the experimental groups to meet for their group guidance sessions in lieu of one weekly reading session. It was decided that on Monday the experimental groups from both sections would come together for group guidance, while the control groups from both sections would meet their regularly scheduled reading class working only on SRA Power and Rate Builders. The reading instructor followed this procedure so that the experimental groups did not miss any actual reading instruction. This unforeseen development added the independent variable of group guidance to the experimental groups and one hour of class work to the control groups. The experimental and control groups received class instruction as usual on Wednesday and Friday.

After random selection, subjects who participated in the experimental groups were briefed on the goals and purposes of the study. The researcher explained that many people in the field of reading were of the opinion that free expression of one's ideas in a group discussion with one's peers might enable one to release anxiety and thereby function at a higher level academically, specifically in reading. The participants were told they might discuss any problem or subject they desired. It was emphasized that the discussion need not be limited to reading or academic problems. After the discussion of reasons why the study was conducted and what procedure would be followed, all students willingly agreed to participate. They were given the free choice of either participating or not participating.

Prior to commencing the guidance sessions, pretests were given to Sections I and III. These tests were *The Diagnostic Reading Tests, Survey Section,* which is designed for students from Grade Seven through the first year of college. Form H was administered at this time. This test measures general reading, vocabulary, and comprehension. The Q-Sort was administered to determine correlation between each student's self-concept and his ideal self-concept; *The Study of Values* was administered as a scale for measuring the dominant interests or relative prominence of six basic interests or motives in personality. Identical tests were administered at the conclusion of the study, except Form G of the *Diagnostic Reading Tests, Survey Section* was used in the post-test.

Following the pretest period, which consumed the first week of the study, the experimental groups began group guidance sessions. These groups met each Monday for twelve consecutive weeks.

In the analysis an attempt was made to find out whether or not the experiment produced significant changes in the subject's ability to read, his concept of himself, or his dominant interest in personality. The most appropriate statistical method of analysis was chosen for each test. In each case the analysis was further strengthened by the fact that each subject served as his own control.

The Diagnostic Reading Test was analyzed for change in the subjects' ability to read. The method of analysis employed in this case was the two-way analysis of variance. If the F-ratio exceeded the critical region as shown in the F table, a significant difference was indicated.

The F-ratio calculated for each source in no case exceeded the F-ratio required at the .05 level of significance; therefore, no significant difference was found to exist between the Experimental and Control samples or between Group I and Group II.

Before concluding that the experimental conditions were not effective, a subjective analysis was made. This analysis indicated that in some cases the Experimental made higher increases in scores than did the Control of Groups I and II. Statistical results certainly would indicate some positive individual increase even though the changes that occurred were not significant collectively as a group, nor could they be attributed to group guidance.

In the statistical analysis of the data from Corsini's Q. Sort, no significant change was made in the subject's self-concept. However, subjectively there were some changes made even though they were not significant at the .01 or .05 level. There is a possibility that the experiment at least helped to bring about some of the changes that were made.

It should be noted that *The Study of Values* score violates a basic assumption of statistical analysis in that the values are not of an independent nature. The analysis on this test revealed a highly significant change at the .01 level in values, regardless of which group the subject was in.

CONCLUSIONS

The findings of this investigation seem to indicate that for the sample involved in this study twelve one-hour group guidance sessions did not produce statistically significant differences between experimental and control groups. However, analysis revealed individual changes.

In the light of the above findings and within the delimitations of this study it would seem evident that selected group procedures in guidance may not produce significant changes in reading improvement, changes in dominant interest in personality, or movement toward one's ideal self-concept at the college level when limited to a period of time as short as twelve weeks or when restricted to a specific type of leadership.

RECOMMENDATIONS

The following recommendations are based upon this investigation:

1. That the present study be duplicated in order that the present findings may be verified.
2. That a similar study of extended time be made with a comparable college student group.
3. That a similar study be made with group guidance sessions being the only independent variable.
4. That further investigation be made of the effectiveness of selected group-guidance procedures on the reading improvement of college students.

5. That a separate and more intensive study be made concerning the relationship between self-concept and reading disability.
6. That a study be made concerning the relationship between dominant interests in personality and reading disability with comparable groups.
7. That a similar study be made at the junior and senior high school levels to determine the relationship between early group-guidance procedures and reading disability.
8. That a follow-up study on these same subjects be made to determine if long-range benefits were derived which may not have been measurable at the time of the study.

Perhaps this study doesn't solve the problems which confront college students who are in academic trouble because of inability to read effectively. However, each door opened and each dark corridor that becomes illuminated may light the way to some of the answers to our problems.

REFERENCES

Burns, Kathryn N. "A Study of the Role That Reading Plays in the Educational Experience of a Group of Students at Michigan State University." Unpublished Ph.D. dissertation, Michigan State University, 1963, 6.

Fortenberry, Warren D. "Reading Readiness for College Freshmen," *Thirteenth Yearbook of The National Reading Conference*, 1964, 51-54.

Lee, A. Maurice. "Results of a College All-Freshman Reading Improvement Program, "*Journal of Developmental Reading*, XI, Autumn, 1958, 20-32.

Robinson, Helen Mansfield. *Why Pupils Fail in Reading*. Chicago: University of Chicago Press, 1940, p. 250.

Spache, George. "Reading Improvement as a Counseling Procedure," *Eighth Yearbook of the National Reading Conference*, 1959, 125-130.

Strang, Ruth. "The Relation of Guidance to the Teaching of Reading," *The Personnel and Guidance Journal*, XLIV, No. 8, April, 1966, 831-836.

Willey, Roy De Verl, and Strong, W. Melvin. *Group Procedures in Guidance*. New York: Harper and Brothers, 1957, p. 6.

A Reading Program as an Essential Part of a Standard Two-Semester English Course

John M. Norris, Jr.

McNeese State College, Louisiana

Misconceptions—not myths—exist about a university's freshman English program, which is often the repository of unsolved academic and administrative articulation problems. Yet lest this paper be but a series of functional digressions, its focus will be on reading. Basic concepts, purposes, organization, methodology, and research: these problems as they pertain to the college freshman English program and particularly to the needed integration of and emphasis on reading in the program will be appraised. The role of the teacher of freshman English will be noted, for it is this teacher who continues the classroom teaching of reading at the college and university level.

When Sir Francis Bacon suggested in his well-known essay *Of Studies* that "Reading maketh a full man; conference a ready man; and writing an exact man," he not only gave credence to a practiced Renaissance concept but also enunciated a traditionalist point of view that even today governs the objectives of most high school English curricula and of many freshman English programs. Within the past fifteen years, a number of high school-college articulation committees have been formed under the sponsorship and guidance of state departments of education, universities and colleges, and various professional societies. The approaches to articulation problems have been diverse; however, there is some general agreement on what the incoming freshman student should know if he is to succeed in a freshman English program.[1] A glance at these areas of agreement will show an ascendant emphasis on reading.

Essentially, the high school student entering a college English program should be able to read, to think, to understand, and to write. These aims should have been instilled and fostered in the secondary school. It is assumed that the student has read a number of literary works—usually masterpieces—in their original or revised versions; that he has read examples of the major types of literature; that he has learned the utility value of reading. The entering student should be able to think logically so that he might single out major ideas and note supporting minor ideas in time-worn and contemporary prose. He should be able to understand the literary-historical relationships of instructor-chosen prose and poetry and as well be able to detect the structure of and author's point of view in prose and poetry. He should be able to identify accepted literary types and genres and should have but little difficulty in defining terms used in critical analysis. He should be able to write—not "creatively" put words on paper—what rhetoricians usually call "four forms of discourse": description, exposition, narration, and persuasion. To these forms may be added analysis. Brevity of thought, step-by-step planning, and mechanics are to be stressed in his writing. Methods of instruction may have changed, but what is expected of the neophyte English student has not changed.[2]

It should be remembered that this paper deals with the "standard two-semester English course." The non-standard quality of the college English program and the diversity of aims of the program have led at least one critic, Warner G. Rice, to suggest that freshman English be abolished.[3] The wisdom of such a step is doubtful, but criticism of many of the philosophies and notions concerning freshman English is in a large measure justified.

At most universities, freshman English is considered to be a "service" course, based primarily on the concept that English is a skill usable in all courses. The service function is emphasized even further where certain university departments have special freshman English courses limited to enrollment by their majors alone, as, for example, a course entitled, "Freshman English for Engineers." When the service aim of freshman English is carried out, many important parts of the program—reading is a most appropriate example—cannot be taught for their own sakes but must be taught for the sake of use. Administrative use of and belief in initial freshman testing is a second university fallacy, for placement in remedial, "average," or advanced English sections is predicated on machine scores and not on recommendations. Not all fault can be laid to university administrators: the English faculty often needs to update its own philosophies.

University freshman English courses are, in one sense, remedial; for it is maintained that review should take up a third or more of the first semester. This approach, which emphasizes repetition, may be limited to functional grammar and the mechanics of writing. Often, however, the reading program is repetitious, and students who in the spring of the year were reading and analyzing Aristotle's *Poetics*, Shakespeare's *Hamlet*, and Hawthorne's *The Scarlet Letter* find that they are re-reading and re-analyzing the same works in the fall of the year, the only changes being in classrooms and university-labeled status. Just as the abilities and knowledge of the high-school graduate are often ignored, so also are the abilities and knowledge of their freshman English instructors disregarded. Instructors teach according to a syllabus, which often may be so detailed as to provide a not-to-be-violated guide on what to teach and lengthy discussions on units of instruction, books that must be read, and techniques that must be followed in the presentation of material. In this department-imposed regimentation lies a paradox: the program, in itself an example of improvisation and invention, was originated and amended numerous times so that it would be flexible enough to encompass and to challenge almost every student on the campus. Flexibility and challenge in the freshman English program are vital, just as continuity of instruction and planned incremental sequence of instruction are essential. Deficiencies in the program have been pointed out time and again,[4] and sincere attempts have been made to provide answers for primary and subsidiary problems of high school-college articulation;[5] yet decisions for uniform, meaningful changes do not appear forthcoming. Let us now examine the freshman English program as it is commonly presented.

Although departmental chairmen and directors of freshman English programs admit to trying a variety of approaches in attempting to solve the freshman English problem, the usual first-year, two-semester English course is a combination of rhetoric and reading. In the first semester the student uses a handbook and an essay collection. Emphasis is primarily on composition and a relearning of writing principles. A wordbook is often used, and theme writing may be based on uniform, semi-imaginative topics destined to test the student's ability to use verbs properly or to recognize correct subject-verb agreement. Generally, however, a collection of essays is used as the basis for theme topics.

It would be supposed that if writing were stressed in the first semester, reading, or a study of literature, would be stressed in the second semester. This is not always the case. Reading of essays continues, and the student purchases an anthology of literary selections to peruse so that he might develop some sort of critical sense. His reading is also supposed to expose him to ideas that he might use in his themes, in class discussions, or in other classes. Yet here the need for utility again becomes apparent, and precise, sequential reading may be sublimated to any or all of the following instructional units: the use of the library; the techniques of and the writing of a non-literary or a literary research paper; the writing of various types of letters; preparation for and the taking of examinations; the preparation and use of extended outlines; the presentation of oral reports.

Admittedly there may be wide variation in the first-year English program. At the small, community-supported junior college, the student may spend his entire freshman year working on drill, usage, spelling, and composition, with little emphasis on reading. It is believed that if the student is able to write with some degree of correctness, he will not disgrace himself at a larger university, where he will be treated to the literary experience. In contrast, at the large university, the first year of English may be a sort of rhetoric-literature, community-focused freshman orientation to the campus or an initiation in general semantics. Yet these programs, like honors programs, are not widespread.

As diverse as the programs themselves are the reading materials available for freshman English programs. Like the programs, too much may be attempted. Now largely out of vogue are heavy three-in-one textbooks which contain a handbook, several chapters on rhetoric, and general readings. A number of thick anthologies have survived three or more editions primarily because not all English faculty members can find something critically wrong with the range of selections found in a comprehensive anthology. It is interesting to note the increasing use of the word *reader* in hard-cover titles intended exclusively for freshman use.[6] Subject-matter or theme may be the principle of selection for unified collections of readings that magnify student problems or interests. Controlled research anthologies are delving more into student and immediate campus problems;[7] however, a variety of titles applicable to literary and social topics may still be found in the guided research series of most publishers. Prepared for even more limited but meaningful appeal are specialized paperbacks on, for example, semantics or language.[8]

The standard two-semester freshman English course should be re-organized so that a reading program which emphasizes both extensive reading and a study of literature is given primary attention. The freshman level, two-semester English course has been tinkered with too long; it is to be doubted that the trend toward further experimentation should be forcefully pursued. Television, teaching machines, programmed instruction, increasing or decreasing class size, selectivity in sectioning classes, the use of department-trained readers, new and more expansive methods of individual and group testing: all appear to merit attention in a statistics-oriented society. Yet experimentation does not imply excellence and, indeed, may divert interest from what is of most importance: subject matter. Specifically pertinent to the standard two-semester freshman English program, it is requisite that subject matter be defined and that the focus of subject matter be determined.

These objectives can be realized through a two-semester course that is directed toward reading and the study of literature both in methodology and in practice. The initial half of the first semester should be devoted to composition, not to a re-study of grammar, mechanics, and fundamentals, for such reviewing is little more than a duplication of secondary-school English. Composition, too, is not merely to be a re-teaching. It would be difficult to maintain that there is a natural order that can be observed in teaching composition. Yet there are several sensible, logical orders through which clear, acceptable prose may result. If an instructor concentrates on composition in the first half of the semester and does not let composition deteriorate into mere imitation of rhetorical types, he may be able to instill in students the sense of progression that they had hoped for in college.

The second half of the first semester, in which the student will begin a reading program and be introduced to literature, should also be planned so that student progression and sequence of instruction are observed. Equally important are teachability, student comprehensibility, and subject matter selectivity, a principle which often is sublimated in secondary-school programs based on saturation and diffusion. Reading in the second half of the first-semester English course, therefore, should be broken down according to four commonly accepted major literary categories. Students should read three short stories, one novel by a well-known American regional author (for example, Faulkner in the South or Hamlin Garland in the Midwest), ten American-authored poems not over one hundred lines in length (thus following Edgar Allan Poe's critical dictum), and one Shakespearean comedy. It might be noted that there is an imbalance in favor of American literature; however, the short stories may be by British, European, or non-Continental authors.

Major emphasis in the second semester of the freshman English program is to be placed on extensive reading by the student so that he might develop more fully his interpretive and critical powers. This semester should not be over-organized so that it is a survey of English or of American literature based on principles of historical organization; it should not be representative of an interdisciplinary course in which exclusive attention is given to translations of classical and medieval literature and to masterpieces of philosophy. Instead, the second semester should be a continuation of readings illustrative of the major literary genres, a semester in which the student is exposed to a wide variety of materials and ideas so that he might realize the many-faceted dimensions of reading. The various patternal extensions of major literary types, essential literary principles, and terms peculiar to literary vocabulary are to be noted. William F. Thrall, Addison Hibbard, and C. H. Holman, *A Handbook to Literature* and M. H. Abrams, *Glossary of Literary Terms*, are excellent reading-aid guides for these purposes.

The selection of reading material should reflect a balance between classics whose literary excellence is established and contemporary writings. A Greek epic, preferably the *Odyssey*, one Greek tragedy, and a Shakespearean tragedy provide a unified prelude to three of Chaucer's *Canterbury Tales* and to the first two books of Milton's *Paradise Lost*. The matter of poetry is covered in a reading of two poems by each of the following authors: Shelley, Keats, Poe, and Whitman. These poets, representative of the English Romantic Movement and of the American Romantic Movement, are weighed against an equal total of eight poems by T. S. Eliot and the American and English Wastelanders. The reading of four short stories by internationally recognized American authors—F. Scott Fitzgerald, Ernest Hemingway, John Steinbeck, and William Faulkner, for example—and the study of two contemporary novels, one American and one British, complete the material for the semester.

The time-worn approach to the second semester reading program would be to proceed from simple to complex. However, the choice of material is flexible enough to allow instructor manipulation of material as he sees fit. Chronological sequence is not to be emphasized; yet the competent instructor should not overlook relationships between literary works and the historical and cultural forces that spawned them. Variety and contrast in the presentation of material should on occasion jostle the student from his day-to-day thoughts and attitudes. There may be student antipathy for certain works, and through the first two books of *Paradise Lost,* the student may battle as monumentally as does Satan. Yet antipathy can lead to challenge, and challenge can bring respect for a work as an example of literary excellence on its own merits alone.

Aside from those advantages touched on or implied in a reading-oriented freshman English program, there are other equally important academic gains that may be enumerated. First of all, articulation programs become meaningful, for the responsibility for teaching fundamentals of writing will lie directly with the secondary school. The master reading list for both semesters of the college program can remain sufficiently flexible so that what are often termed "bold and daring" approaches to the study of literature will not be discouraged. The act of reading would of necessity come first, not second: rhetoric would logically become the outgrowth of reading. Consequently it should be possible to eliminate such ludicrous approaches to literature as having a student read a Hemingway short story so that he might note Hemingway's use of the period.

The reading approach to freshman English also finds a rational middle ground between "bonehead" English and advanced placement English, thus making the initial year of college English a terminal program. This is an advantage that administrators assuredly favor. In an era of technology, students enrolled in science curricula may be required to complete only twelve hours of English: six hours of freshman English, a three-hour course in advanced grammar or linguistics at the junior level, and a course in technical writing at the junior or the senior level. It is well, then, that in their freshman year, students come to realize the humanizing influence of reading through reading literature for its own sake.

Freshman programs that reflect a preponderance of reading are new neither in concept nor in practice. The approaches used and the results achieved by Harvard University Professor Reuben A. Brower in his Humanities 6, "Introduction to Literature," are well known.[9] In part, this emphasis placed on reading by private prestige universities of the East is reflected in state-supported universities of the region as well. For example, this fall the University of Pennsylvania instituted English 101, "Prose," and English 102, "Poetry," a one-year course based on the reading approach.[10] The larger problem, however, lies with the majority of universities outside the fringe of the Ivy League, for they cannot exercise Ivy League selectivity of students.

A reading program for freshman students may be ideal in the planning phase, but the program may fail in the classroom because of ill-trained teachers. Every college administrator is aware of the money-numbers pinch at the freshman level, of the shortage of competent instructors, and of the increasing use of graduate assistants. It is not within the scope of this paper to evaluate these problems at length or to point out what is being done to solve them.[11] Dr. James R. Squire, Director of the National Study of High School English Programs, suggests that an essential weakness of secondary school literary study, which is basically an evaluation of reading, lies in teacher failure to use instructional methods that they have learned:

> Our real quarrel is with the incessant superficiality of much classroom study of literature—with, if you will, the *evasion* of literature represented in too many classrooms. . . . It does seem that some of the important approaches of modern scholarship and teaching methods which have revolutionized college teaching are not yet being widely applied in the schools.[12]

Earlier in this paper, a few suggestions were made on the classroom management of reading material. This problem should be considered further. Perhaps it may be well to examine various modern critical approaches to literature and determine the measure of success that might be achieved through the application of each approach.

Greatest promise for the reading program teacher seems to lie in the techniques employed by the New Critics, for they emphasize undisturbed scrutiny and analysis of the text itself so that its effectiveness, value, and intrinsic artistic maturity may be appraised. The many facets of the New Criticism method, especially well known to American university faculties because of the remembered work done by John Crowe Ransom, Cleanth Brooks, Robert Penn Warren, and F. O. Matthiessen, are not really new, but do represent a rebellion against earlier, more restrictive methods. Indeed, an explanation of the background of the rebellious critical concepts of the New Critics may make their dogmas more palatable to another generation of would-be scholars. Yet more important than rebellion, the methodology of the New Critics puts focus on a single reading by demanding that the work be read with care, attaches importance to a broad, individual, imaginative approach, requires a doing away with jargon and abstraction, and in total deals with literary value problems. There are disadvantages—notably a denigration of other methods and a selection of seventeenth-century and contemporary material that is best tailored to the methodology of the New Critics. Nevertheless, inherent in the method are sufficient versatility, adaptability, and challenge for the classroom director of a reading program.

Other critical methods remain, but to be used in the freshman reading program, they should be modified or used with thoughtful discretion. The philological, or "genetic" approach to literature is traditional at a large number of universities. The method accents chronology, facts, sources, and relationships. Orderly pedantic presentation is to be admired, and the philological method is ego-satisfying for upper-level and graduate-level professors. For the freshman, though, the method is lecture-heavy and may create an occasion for overwhelming erudition by some faculty members. The abstract methods of the New Humanists, best represented initially by Harvard's Irving Babbitt and Princeton's Paul Elmer More, are conservative and aristocratic. Their moralism and classical temper may be commended, but not their self-determined austere ethical rationalism. The History of Ideas movement, first solidified in America by A. O. Lovejoy,[13] brings subtlety and extensive ramifications to the reader. Yet ideas are imaginative and suggest value judgments; the history of ideas requires neither. Of outgrown use is the 1930's Depression-born methodology which examined literature primarily for its social or political implications. (Few graduate students in history or in English have not read Vernon Parrington's *Main Currents of American Thought, 1927-1930.*) The methodology suggested by Carl Jung's ideas of myth and archetypes applied to literature and the practices of the Neo-Aristotelians of the University of Chicago are worth noting but not evaluating. The currently researched field of modern linguistics offers a number of possibilities, but a final evaluation of their worth cannot be made until there is more unification of linguistic views and more agreement on how to teach classroom-usable linguistic techniques to teachers.[14]

That the methods and the materials for an effective freshman reading program are available is evident. It remains for the teacher to adopt and to use them.

Heartening to English faculty members was the establishing of Project English under the sponsorship of the United States Office of Education. Annual reports of past years have divulged a number of diverse trends. The current annual report, which was published in September of this year, is no exception. This report was prepared by Michael F. Shugrue and is a precis of reports prepared by the directors of twenty-five Curriculum Study and Demonstration Centers so that the historical record of the United States Office of Education would be complete through the first month of the current year.[15] The programs sponsored by the Office of Education were of necessity dissimilar in nature, ranging from an application of traditional methods of teaching English to study of special groups, such as the disadvantaged and students who were learning English as a second language. The diversified programs, although designated as segments of Project English, were usually joint efforts of departments of English, psychology, and departments within various university schools of education.

The general areas of agreement merit a concise review. It was determined that instruction in all phases of communication should be sequential and cumulative. The paradox of "flexible rigidity" remains: changes in curriculum design should be made, although there is strong support for the traditional idea of a carefully organized three-year high school communications curriculum, to include day-to-day lesson plans. The necessity of evaluative testing remains. Current up-to-date materials must be available to classroom teachers. Lip service might be given to the need for a trend towards flexibility, and an amalgamation of communicative subject areas might be promised. However, the teaching of English is still segmented to composition, language and literature. Traditional interest in composition and literature remains; yet new interest is still being generated in studies of structural linguistics, psycholinguistics, and generative and transformational grammar.

True it is that these twenty-five centers took a variety of approaches, but it must not go unnoticed that only four institutions—Carnegie Institute of Technology, The University of Michigan, The University of Nebraska and Syracuse University—in varying degrees investigated the problems of reading. Of these four universities, highest utility value of reading is to be found in the Syracuse University Ten-Film Series on secondary level reading instruction and in the results achieved by the Syracuse University-Jamesville-DeWitt Demonstration Center. The saturation-diffusion program initiated and tested by the Department of English, the Department of Psychology, and the School of Education of The University of Michigan will prove to be of value at the college freshman level. On the basis of this current Project English report, it would seem that the importance of reading is being minimized—not stressed—and that problems which can be solved by statistical processes are the weighing factors in research design.

A most difficult problem concerning the freshman reading program persists. It will not be solved until there is a change in the current philosophy about freshman English. It is not merely a service course, although it is set up to be, nor is it merely a repository of nebulous values. Freshman English is the most important program of any English department, yet always the most poorly taught program. The course is assigned to graduate assistants, to long-tenure faculty "hangers-on" with the rank of temporary instructor, or to the new Ph.D.'s trying to do research so they might advance up the publish-or-perish ladder. One solution has been to suggest a reduction in load to no more than nine hours, plus other considerations.[14] A reduction in workload may help by relieving the already overburdened graduate assistant or instructor, but it still does not solve the basic problem: excellence of teaching.

To a degree, a measure of contemporary professional sophistication may have to be removed before an effective freshman reading program can be realized. Reading is not an exact science nor a specific skill. It is essentially a humanistic approach to life in which eclecticism and pragmatism are more important than technique. For the college freshman, reading is a study of literature and is still an individual interpretation of the written page and the reaching of conclusions based on reasoned judgments.

The goals for the reader may not always be clear to him. He may gain a lesson in imaginative or "programmed" logic; he may gain an insight into the multifold forces of our culture, "the wisdom of the ages"; he may glean a moral lesson; he may become sensitive to his immediate world or to his fellow man so that in turn he might participate in his world, not isolate himself from it. A planned reading approach to the standard two-semester freshman English program may help the freshman to achieve these goals.

FOOTNOTES

1. See, for example, *The Challenge of Curricular Change* (New York, 1966). This newly published volume contains the papers of the Colloquium of the Challenge of Curricular Change, which was held at Skytop, Pennsylvania, in April, 1965, under the sponsorship of the College Entrance Examination Board and the National Association of Secondary School Principals. See also "What the Colleges Expect," *English Journal*, LI, 1962, 85-93. Both articles are reports of the NCTE Committee on High School-College Articulation.
2. Robert S. Hunting, "What We Do Not Expect from High School Graduates," *English Journal*, 1958, 47:145-147; G. R. Carlsen, "From High School into College," *English Journal*, 1956, 45:400-405; Alfred R. Grommon, "Coordinating Composition in High School and College," *English Journal*, 1959, 48:127-131; "An Articulated English Program: A Hypothesis to Test," *PMLA*, 1959, 54:13-19; Oscar J. Campbell, *The Teaching of College English*, New York, 1934, pp. 19-33; Herman A. Estrin, "Articulation of College and High School English," *Improving College and University Teaching*, 1962, 10:181-182.
3. Warner G. Rice, "A Proposal for the Abolition of Freshman English as It Is Commonly Taught, from the College Curriculum," *College English*, 1960, 21:361-367.
4. See, for example, Albert R. Kitzhaber, *Themes, Theories, and Therapy: The Teaching of Writing in College*, New York, 1963.
5. Of interest are "Resolutions Adopted at a Seminar of English Department Chairmen Held at Allerton Park, December 2-4, 1962," *College English*, (1963), 24:473-475, and a report on the aftermath found in James R. Squire, "The Profession Faces the Future: Developments Since Allerton Park," *College English*, 1964, 26:38-42.
6. Note Arthur M. Eastman *et al.*, eds., *The Norton Reader*, New York, 1965; Charles Muscatine and Marlene Griffith, eds., *The Borzoi College Reader*, New York, 1966; Jerome W. Archer and Joseph Schwartz, eds., *A Reader for Writers*, 2nd ed., New York, 1966.
7. Compare Arthur Waldhorn and Hilda K. Waldhorn, eds., *The Rite of Becoming: Stories and Studies of Adolescence*, Cleveland, 1966 with Christopher G. Katope and Paul G. Zolbrod, eds., *Beyond Berkeley: A Sourcebook in Student Values*, Cleveland, 1966.
8. See Louis B. Salomon, *Semantics and Common Sense*, New York, 1966 or Alfred M. Bork, ed., *Science and Language: Selected Essays*, Boston, 1966.
9. See further Reuben A. Brower, *The Fields of Light*, Oxford, Galaxy Books, 1962 and Reuben A. Brower and Richard Poirier, eds., *In Defense of Reading*, New York, 1962.
10. "Prose and Poetry Sequence Will Replace Required Freshman Composition Courses," *University of Pennsylvania English Department Newsletter*, No. 2, 1966, 2.

11. New awareness of the critical college classroom teaching problem is shown by the National Council of Teachers of English, who in the spring of 1967 will publish twice a year a journal entitled *Research in the Teaching of English.* The publication is "designed for people regularly conducting or reading research in the teaching of English ('teaching' as broadly conceived)." See "Research in the Teaching of English," *College Composition and Communication,* 1966, 17:99.

12. James R. Squire, "The National Study of High School English Programs: Implications for Colleges and Universities," *College English,* 1966, 27:619.

13. Arthur O. Lovejoy, *Essays in the History of Ideas,* Baltimore, 1948.

14. An interesting summary may be found in Noam Chomsky, "The Current Scene in Linguistics: Present Directions," *College English,* 1966, 27: 587-595.

15. Michael F. Shugrue, "New Materials for the Teaching of English: The English Program of the U.S.O.E.," *PMLA,* 1966, 81:3-38. This is a third account summary of Project English. See also J. N. Hook, "Project English: The First Year," *PMLA,* 1963, 78:33-36 and Erwin R. Steinberg, "Research on the Teaching of English under Project English," *PMLA,* 1964, 79:50-76. Of interest also is Robert C. Slack, "A Report on Project English," *College English,* 1964, 26:43-47. The Materials Center of the Modern Language Association, 4 Washington Place, New York, N.Y. 10003 has available the evaluations, syllabi, and bibliographies of the summer institutes associated with Project English.

16. "The Workload of a College English Teacher: A Proposed Statement of Policy," *College English,* 1966, 28:55-57.

A Description of a Junior College Reading Program

By Loretta Wade

Lincoln Junior College, Lincoln, Illinois

Before giving a description of the reading program at Lincoln College, a general look at those of other junior colleges seems in order. Two major points may be made concerning students who are accepted at junior colleges:

1. Four-year colleges tend to attract students with higher academic achievement than that of junior college freshmen. This may be partly due to the easy admissions policy in junior colleges. Also, a large number of junior colleges not only emphasize intellectual development but dwell heavily on the areas of vocational and technical skills.

2. Students enrolled in two-year colleges and those enrolled in four-year colleges seem to possess equally variable academic potential. However, because of their very nature junior colleges must contend with a wider range of intellectual talent—from the lowest intellectually endowed student to the gifted student. Since junior colleges must provide for this extreme range of ability, this is an implication for several levels of instruction in subject-matter areas. This points up the need for reading instruction in the junior college.

Available material discussing reading programs in junior colleges is quite scarce, as indeed, is material of a general nature relating to junior colleges. Therefore, in order to obtain a description of existing programs, a questionnaire was mailed to the deans of faculty of thirty-seven junior colleges in Illinois. This list included seven private non-denominational colleges, twenty-seven public colleges, and three church-supported colleges. Replies from thirty-three colleges were received. The colleges range in population from 180 for a brand-new college to the large public junior colleges with as many as 4,800 students. We may get the following picture of reading programs in Illinois junior colleges: Of the thirty-two colleges which replied, nineteen have at least one reading program on the campus, thirteen do not, and one college offers to the students the services of a company which specializes in reading improvement.

In most cases the reading program is operated by the English department. In fact, only one is operated by the counseling department, only two reading programs are independent of other departments, and one is operated separately as a reading laboratory. In one school, reading is taught in combination with remedial English; the teachers, therefore, teach both reading and English. Seven of the colleges have full-time and part-time instructors, while the rest have part-time instructors only. For some, "part-time" means that the instructors do not have a full teaching load, and for the others, it means they teach reading classes as well as at least one other course.

One important part of the questionnaire surveyed the background of the instructors teaching the reading courses. Of the total number of sixty-three instructors reported as teaching reading, twenty-eight had college preparation with specific reading courses. Most of the same received on-the-job, in-service preparation. Some were in the reading program only because of their interest, while only one admitted he had inherited the program with no preparation. Four of the instructors have bachelor's degrees, forty-two have master's degrees, and three have Ph.D's. Most of the instructors—forty-five—have majors in the field of English, seven in psychology, four in elementary, two in education, and one in reading. The deans reported from all but four colleges that they felt that the preparation of the instructors was satisfactory. The four exceptions were felt to be somewhat satisfactory, in one case because the instructor taught reading in combination with another class.

Of the nineteen colleges with reading programs, thirteen admitted to having a difficult time acquiring reading instructors. The others did not, in some cases because they asked instructors already on the staff to teach the reading classes.

Another section of the questionnaire involved the selection of students for the reading classes. In six schools the students volunteer for reading courses with no outside influences, such as teachers. In nine schools the students enroll in the course upon the recommendations of advisors and/or instructors. Low test results place students in the courses at sixteen of the junior colleges, and poor pre-college performance, such as high school grades, is the cause for students enrolling in four of the colleges' reading classes. Deans at three colleges stated that difficulty with assignments in other courses influenced students to enroll in reading courses. At these two schools the students volunteer because of such difficulty or at the suggestion of the instructors of courses in which they are enrolled.

At most of the schools the classes meet two times per week. At some of these the students may be required to meet in small groups or individually extra times. In two schools the reading program is offered as a reading laboratory, where the students come in on their own instead of being scheduled as classes.

For one of the questions—What is the emphasis of the course?—I feel that the difference in the answers is based on poor definition of terms on my part rather than actual differences in course material offered. However, thirteen reported offering a remedial course, eighteen offer developmental, and three offer speed. The overlap in numbers indicates that some offer two or three types of courses, while some emphasize a combination of two or three elements in one course.

A variety of materials is used in the reading programs, including pacers, tachistoscopes and other machines, Reader's Digest-type materials, S.R.A. and R.F.M. laboratories, novels, textbooks, textbook-type materials, films, special college editions of monthly magazines, workbooks, and essay collections. The majority of colleges use either machines or textbooks and textbook-type materials.

I was interested in another phase of the administration of the course. In all but one school, enrollment in the course becomes part of the students' permanent college records. In seventeen colleges students receive credit for the course; eight give college credit and nine give pre-college non-transferable credit. In two colleges the course is offered for no credit. In seventeen cases an A, B, C, etc., grading system is employed, while credit or F is given at two schools; and one school uses both systems for two different types of courses.

I also was interested in the names given to the reading courses. Answers to this question included the following: Reading Skills (4), Developmental Reading (9), Reading Techniques (1), Remedial Reading (3), Reading Workshop (1), Basic Reading Skills (1), Reading: Speed and Comprehension (1), Reading Improvement (1), Reading Development (1), Speed Reading (1), College Enrollment (1), and Reading/English (2).

As necessary to the picture as those junior colleges having reading programs are those which do not. Fourteen junior college deans reported that they do not at this time have a reading program. Five of the college deans did not complete questions on the survey. One dean did report that a reading program will be considered when the new campus is built although such a course is not in the present plans. One junior college has at present only an adult reading program, but upon completion of the new campus a college reading program will be implemented. A third college does not have its own reading program. The services of a commercial organization are employed successfully under the direction of the educational director for summer school with no plans for implementing it during the regular school year. One of the colleges offered reading courses at one time and hopes to reinstate them in the near future.

The first question under Section II concerning proposed reading program was, Have you or are you presently considering implementing a reading program as part of your curriculum? Seven colleges answered "Yes." Two schools reported that the motivation behind these considerations was an expressed need by students. Five colleges are considering a reading program based on an expressed need by advisors, and at five colleges the suggestion is a result of administrative decisions to broaden the curriculum.

Five schools reported that the program will be under the jurisdiction of the English department, although one hopes that soon the program will operate as an independent department. This reading program will be operated as an independent department, although it will be under the direction of the education counselor. One will be under the Department of Adult Education for Basic Education but will be made available to the academic program also. Another will operate from the beginning as an independent department.

Plans for the number of instructors range from one in a school of 1,600 to 1,700 students to five instructors each for schools of 700 and 1,500. All of the schools expect to fill teaching positions with persons with Master's degrees.

Student selection for the course will be based on miscellaneous items already in existence in other colleges, including volunteering, recommendation by advisors or instructors, test results, and accumulated records from high schools and the college mid-term grades. Two of the schools will offer reading as a laboratory which will be open all day for the students' convenience. The other schools will schedule classes two times per week.

Four of the schools will offer remedial reading, four will offer developmental reading, four will emphasize speed, and one will work on individual problems of students. Another will also offer a study skills emphasis. Again the emphases overlap.

Materials which will be used in the courses will include machines (3), Reader's Digest-type materials (1), laboratory materials (3), novels, textbooks and textbook-type materials, and films (4). One school reported it will use a system similar to Speed Reading Institutes.

In five schools, enrollment in the course will become part of the students' permanent records, while one school will keep charts on the students but not make enrollment part of the permanent records. The remedial courses at three colleges will be offered for pre-college (non-transferable) credit while developmental and speed courses at four schools will be offered as non-credit courses. Grades of A, B, C, etc., scale will be used for the courses at three schools, credit or F at another, and two will not grade the course. The last two will make formal notes as to the students' progress.

Two colleges have determined to call the reading course Speed Reading and Reading Laboratory. The others have not decided upon names. All but one of the junior colleges hope to implement the program within the year. With the adoption of these formal reading programs the number of junior colleges in Illinois which will be carrying a reading program will swell to twenty-six.

DESCRIPTION OF LINCOLN COLLEGE

Lincoln, Illinois, the home of Lincoln College, is midway between Chicago and St. Louis. The school is a private, residential, independent, co-educational junior college having student population of about 660 with a 15 to 1 student-faculty ratio. An unusual feature for a junior college is that it is a residence campus with most of the students living in dormitories.

The Lincoln Plan provides a two-year program in the liberal arts including emphasis on music, drama, speech, art, mathematics, science, business, and history. Students who plan to transfer to four-year schools may receive pre-professional training and courses leading to the Associate in Arts degree. Terminal students and those in special situations may receive a Certificate of Achievement.

Admission to Lincoln College is not based solely on class-rank or test scores. Students of both high and low rank are accepted on the basis of potential and motivation. Therefore, high potential is the main requirement, so that the student body includes those with high achievement who qualify for the honors scholarships as well as those with poor pre-college performance but high potential.

Upon entering Lincoln College, each student is assigned a member of the college faculty as an advisor. The advising system has been refined to the point of becoming the hub around which the academic life of the student revolves. Course programs and changes, grade reports, petitions, and parent conferences are some of the aspects of student life shared with advisors.

Based on material provided by the American College Testing Program for the freshman class of Lincoln College for 1965-1966, the students may be characterized on the following points:

I A. English—58% scored above the 45th percentile, 42% scored below.
  B. Mathematics—61% scored above the 45th percentile, 39% scored below the 45th percentile.
  C. Social Studies—57% scored above the 45th percentile, 43% scored below.
  D. Natural Sciences—59% scored above the 45th percentile rank, 41% scored below.
  E. Distributions of High School Grades (% at each level)

	A	*B*	*C*	*D*	*F*	*Not Taken*
English	0.8	10.2	47.7	39.1	0.8	1.6
Math	2.3	7.8	28.9	50.0	7.0	3.9
Social Studies	2.3	14.8	54.7	24.2	0.8	3.1
Natural Science	0.8	9.4	39.8	36.7	6.3	7.0

II Goals and Aspirations
  A. Educational Major
    1. Social, Religious and Educational fields—10.6%
    2. Administrative, Political and Persuasive—17.7%
    3. Business and Finance—30.1%
    4. Scientific—3.5%
    5. Engineering, Agriculture and Technology—6.2%
    6. Medical fields—2.7%

        7. Arts and Humanities–6.2%
        8. Other–1.8%
        9. Undecided–21.2%
    B. Vocational Choice
        1. Social, Religious and Educational fields–9.6%
        2. Administrative, Political and Persuasive–19.1%
        3. Business and Finance–6.4%
        4. Scientific–5.3%
        5. Engineering, Agriculture and Technology–6.4%
        6. Medical fields–3.2%
        7. Arts and Humanities–8.5%
        8. Housewife–2.1%
        9. Other–10.6%
        10. Undecided–28.7%
    C. Educational Plans–degree sought
        1. College–less than Bachelor's degree–23.7%
        2. Bachelor's or equivalent–47.3%
        3. One or two years grad or professional study–21.5%
        4. Ph.D.–0.0%
        5. M.D.–1.1%
        6. D.D.S.–0.0%
        7. L.L.B.–5.4%
        8. B.D.–0.0%
        9. Other–1.1%
    D. Extracurricular Plans
        1. Athletics–Intercollegiate–47.3%
        2. Music–38.3%
        3. Writing–26.6%
        4. Student Government–41.5%
        5. Science clubs and projects–25.5%
        6. Debate–16.0%
        7. Acting–33.0%
        8. Departmental Clubs–79.6%
        9. Athletics–intramural–67.0%
    E. Area of Greatest Competency
        1. Athletics–25.8%
        2. Music–19.1%
        3. Writing–6.7%
        4. Student Government–2.2%
        5. Science Clubs and projects–3.4%
        6. Debate–1.1%
        7. Acting–4.5%
        8. Departmental Clubs–12.4%
        9. Athletics–intramural–24.7%
III Type of Home Community
    A. Farm or open country–12.1%

B. Suburb in metropolitan area of
  1. More than 2 million—7.7%
  2. 500,000 to 2 million—5.5%
  3. 100,000 to 499,000—7.7%
  4. Less than 100,000—36.3%

C. Central city in metropolitan area of—
  1. More than 2 million—8.8%
  2. 500,000 to 2 million—2.2%
  3. 100,000 to 499,999—5.5%
  4. 50,000 to 99,999—3.3%
  5. Less than 50,000—11.0%

IV Estimated Family Income
  1. Less than $5,000 per year—1.1%
  2. $5,000 to $7,499—3.2%
  3. $7,500 to $9,999—16.0%
  4. $10,000 to $14,999—14.9%
  5. $15,000 to $19,999—8.5%
  6. $20,000 to $24,000—7.4%
  7. $25,000 and over—12.8%
  8. Consider this confidential—16.0%
  9. Do not know—20.2%

V Type of Residence
  A. Resident (in state)—76.5%
  B. Out of state—23.5%

THE READING PROGRAM AT LINCOLN COLLEGE

After an examination of reading programs at other colleges and after operating a program at Lincoln College, the following statement of objectives has evolved:

A. We attempt to make individual readers more critical and observant.

B. We try to strengthen students' vocabularies and increase potential for clear understanding and communication.

C. The vicarious experiences that students experience through reading diversified materials should create interest in reading.

D. We endeavor to increase permanently each student's rate of reading with satisfactory maintenance or rise in the level of comprehension.

E. A strong attempt is made to offer reading and study techniques which make study in other courses more effective.

The reading courses at Lincoln College are operated within an independent reading department. When the program was first organized, it was conducted as part of the English department. However, the director of the program was not a member of the English staff.

There did not seem to be an interest in the reading program on the part of the English instructors. Therefore, the reading department became an independent one, although it works in close cooperation with the English department as well as with the other departments in the school. This cooperation, no doubt, is due largely to the close advisor-advisee relationship.

At present one instructor is in the reading program for the regular year and another is on leave of absence for this semester. Both will be working full-time next semester. Both instructors have had college courses specifically designed for the teaching of reading. One instructor has a Bachelor's degree in English and the other has a Master's degree in education with a major in reading.

I was asked to set up a program for college reading skills preceding the summer of 1963 as a new curriculum emphasis evolved at the college. In accordance with the above discussed philosophy and aims of Lincoln College there began two concurrently-operated summer sessions. One session offered regular transferable courses. The other session was and is called the College Review Session. Most students for the review session are selected from applicants who have high school grades and college entrance exam scores which are too low to be accepted at Lincoln College for the fall semester. The College Review Session offers the prospective students an opportunity to prove, despite low grades and scores, that they are capable, with some review work, of becoming full-time college students able to compete with other college freshmen in regular courses in the fall. The College Review Session includes review English, science, and math courses, as well as work in reading and an intensive study skills course.

All students must enroll in reading and in the study skills course. Enrollment in the other review classes is based on low scores in the English, science, and mathematics sections of the ACT test, which is required for enrollment in Lincoln College. Students may be required to repeat the course, Reading Skills, if they have not made sufficient progress in one semester.

The reading programs for the summer review session and for the regular semester are much alike. However, there are a few differences which should be noted. While plans for next summer project an eight-week session, up to this time the summer session has met for twelve weeks with classes meeting four times per week. Therefore, students in the reading courses met about fifty times during the summer, while they meet thirty-six times during a regular year with extra meeting times for smaller groups and individual help.

The number of students in the reading program during semester sessions is limited by the number of instructors available; during the summer the availability of five instructors allows all students the advantage of enrollment in the course.

As the reader will later become aware of, the reading courses include not only reading skills techniques, but also study skills techniques. During the summer sessions, the study skills part of the course is omitted because an intensive study skills course is required for all students in both summer sessions, the review and the regular concentrated sessions. Therefore, emphasis is on the improvement of reading skills.

The same materials are used in both the summer sessions and regular sessions. These are listed at the end of the paper.

At the beginning of each semester, the Nelson-Denny Reading Test is administered to all new students. In the fall this group consists mostly of students who are new to Lincoln College. At the beginning of the second semester, some of the students are beginning college students, but many are transfer students.

After the tests are scored and the instructors have estimated the number of students they will be able to handle, those students who scored lowest on the test are required to enroll in the course. Memos are sent to the students' advisors, who then include reading as part of the students' course schedules. Students not required to enroll may volunteer for the course. Students falling into the latter category are influenced by the following factors: suggestion of high school teachers or counselors, suggestion of college advisors because of poor precollege performance and/or low scores on other college examination tests, and the student's own realization of his need for help.

Areas covered in Reading Skills are specific in nature and depend on each individual student's needs. Class size is small, no more than ten per class and usually fewer, so that individual help is available. In addition to general emphasis on improvement of reading rate, comprehension, and vocabulary, there are two major divisions within the course. The three main skills–rate, comprehension, and vocabulary–are, of course, taught purposely within these two divisions.

The first division, Reading Skills, involves such items as main ideas and details, sequence relationships, phonetic and structural word analysis, summarizing and organization, relationships involving time and place, and skimming.

In this course, it is unwise to stress speed too heavily, since many of the students do not have highly developed skills which would allow them to make the most efficient progress in this area. However, since an increase in speed can be more easily seen than some of the other skills, this is often a good introduction to the reading skills section of the course. First, it is necessary to convince the students that they can increase speed and still maintain or increase comprehension. Therefore, to assure the students that speed and comprehension go hand in hand an intensive discussion follows which investigates the relationship of speed to comprehension and how word-by-word reading actually decreases comprehension as well as slowing the reading speed. At the same time the student learns that good readers also are versatile readers.

While the first division emphasizes reading techniques, the second division consists of the utilization of those techniques in study skills. It is important that the reader realize that a study of reading skills is maintained throughout the study skills section. These are taught in direct connection with textbooks used in each student's courses in the hope that carry-over into everyday practice will result. Five areas may be listed under the heading of study skills. Almost the first topic covered during the semester is reading college textbooks. Since this is of major importance to the students this seems to be one way to win their interest. An important part of this section is to note the difference between college and high school textbooks. The points cover differences in the number of photographs, the tone of the textbooks, vocabulary, style, conciseness, and abstractions.

This examination is followed by practice in reading specific assignments in various subjects: first, basic reading attacks by the "whole assignment" method or "sections-by-section" method. After this, special reading attacks are discussed for assignments in social science, mathematics, literature, and foreign language.

The method of studying chapters used is the OK4R method suggested in Pauk's *How to Study in College*. The formula includes getting the overview, and the key ideas, reading, recalling, reflecting, and reviewing.

The instructors give clues in taking notes for courses as a second part of study skills presentation: first, taking notes from textbooks, then taking notes from outside reading assignments and from lectures.

Listening to lectures effectively is a skill with which most college freshmen have had little practice so it is important that an effort be expanded in this direction. Class discussions cover such points as seating position in the classroom, the effect of the *act* of taking notes, the physical appearance of the notes (organization), and dividing attention between listening and writing. These points are developed with the assumption that a student has properly prepared for the lecture by engaging the points covered under reading assignments, thus knowing what to listen for.

Several techniques are employed in the teaching of vocabulary building. Some emphasis is given to word parts—prefixes, suffixes, and roots. This proves to be of some value to the students. However, the book *Learning to Learn*, by Smith, *et al.* suggests discovering the meanings of words through the five context clues—definition, experience, comparison and contrast, synonym, and summary. This seems to me to be the most valuable emphasis for college freshmen. Most would admit that it is admirable to improve one's speaking vocabulary. However, at this point in a student's life, improvement of reading vocabulary is most valuable. Most college freshman textbooks concentrate on introducing the vocabulary of the course and therefore, students should learn to employ the use of the above context clues. If a student can learn to use these clues he will automatically be increasing his vocabulary.

Preparing for and taking examinations is an important and often one of the most puzzling parts of college life. Again this skill is one in which the student has received little training. This should not be left to trial-and-error practice so it is included in the study skills section of the reading course. Under the section of learning for a test is a discussion of the difference between cramming and the final intensive review—that cramming is intensive study of new, unlearned material whereas the final review is a study of material already learned. The final intensive review, then, consists of clarifying the frame of reference, relating ideas, striking out unnecessary points, and filling in gaps. Some techniques of remembering for tests include studying notes in chronological order, getting a bird's-eye view before learning particular points, varying the attack on the material, using mnemonic devices where it is practical to do so, and learning groups of items rather than single details. The major emphasis under learning material for a test is that the student must understand the material he is attempting to learn.

Main points emphasized during the discussion on taking tests are following directions and planning time so that the student can make the most of his efforts on the examination. If he does these two things he can make more effective use of his knowledge of taking objective and essay examinations.

A second course, Developmental Reading, is available for students whose scores do not require them to enroll in Reading Skills. Also, students who have been in Reading Skills for a semester and who have made sufficient progress in the course are allowed to enroll in order to reinforce skills attained.

Some of the same study skills topics are covered in the Developmental Reading course. The major part of the course is speed improvement because the students have sufficient word attack skills and comprehension is high enough to allow this emphasis. The more refined skills of reading that come under critical reading are emphasized, such as author's viewpoint and purpose, cause-effect relationships, and analogies.

CONCLUSION

It has been established that on the whole, students who are enrolled in junior colleges are less well prepared than those in four year colleges. Thus, the need exists for several levels of instruction in various courses in junior colleges. A basic need for a course in Reading Skills seems apparent. At Lincoln College, the 1965-1966 freshmen who were enrolled showed improvment in their reading skill techniques. Most of them improved to the point where they should be able to handle college reading material. Students who remained in the reading courses for two semesters made sizable gains in reading speed and comprehension. I felt this is because at the end of one semester some students had just gotten to the point where great gains could be made. Therefore during the second semester, concentration was centered on these techniques enforcing the skills. After all, if a person has been lacking in skills for at least twelve years, one can not expect to overcome this lack in one semester.

The inclusion of study skills in the reading course came as a result of an expressed need by the students. I discovered in attempting to answer the students' questions that for college students reading skills techniques are very closely connected with, and indeed, inseparable from study skills. For students at Lincoln College who enrolled in reading, 67% improved their grade-point average from the six weeks' grading period to the end of the semester. Only 58% of the students not enrolled in reading showed an improvement in grade-point average.

For practical purposes those enrolled in reading took course loads similar to those not enrolled in reading. As a result of my own feelings borne out by what little statistics I have available, I think that the reading program at Lincoln is a working one in that it is successful when the results are checked with the criteria of the objectives of the program.

An interesting follow-up for this report would be a check on the degree of success each reading program in the various junior colleges has met since inception.

MATERIALS USED IN READING COURSE

The first three books listed below are textbooks used in the courses:

Diederich, Paul and Carlton, Sydell, *Vocabulary for College*, New York: Harcourt, Brace, and World, 1965.

Glock, Marvin, *The Improvement of College Reading*, Cambridge, Mass.: Houghton Mifflin, 1954.

Shaw, Phillip, *Effective Reading and Learning*, New York: Thomas Y. Crowell Co., 1955.

The instructors have available and make use of several supplementary textbooks and other materials, mainly the following:

Brown, James, *Efficient Reading*, Revised Edition, Boston, 1965.

Pauk, Walter, *How to Study in College*, Boston, Houghton Mifflin, 1962.

Shaw and Townsend, *College Reading Manual*, New York: Thomas Y. Crowell Co., 1959.

Smith, Donald, *et al*, *Learning to Learn*, New York: Harcourt, Brace and World, 1961.

Spache, George D. and Berg, Paul C., *The Art of Efficient Reading*, New York: MacMillan Co., 1955.

Witty, Paul, *How to Become a Better Reader*, Chicago: Science Research Associates, 1953.

How to Improve Your Reading, Chicago: Science Research Associates, 1956.

The following tests are administered by the reading department. The Nelson-Denny Reading Test is given to all students, while the others are available for specific cases:

California Reading Test-Advanced, Grades 9-14, California Test Bureau, Monterey, California.

Cooperative English Test C2—High School and College, Cooperative Test Division, Educational Testing Service, Princeton, New Jersey.

Iowa Silent Reading Test, Houghton Mifflin, Boston, Mass.

The Nelson-Denny Reading Test—Grades 9-16, Houghton Mifflin, Boston, Mass.

REFERENCE

ACT Class Profile Report, Freshman Class-1965, Lincoln College, Iowa City, Iowa: American College Testing Program, 1965.

Implications of Structure in Language

F. Allen Briggs

Sul Ross State College Alpine, Texas

The primary purpose in reading is to extract "meaning" from written language. This statement, so trite that it is often skipped in a study of reading, still contains the "reason for being" behind all reading teaching and the existence of such organizations as the National Reading Conference. In this discussion, my purpose is to reconsider the base in the hope that some fundamentals which have been slighted may still be valid.

Primary in the difficulty is the double concept of the word "meaning." Because it is customary to use the same word for both ideas, there often is an elision of process which omits an essential step. "Meaning" is both semantic meaning (that is, recognizing the idea for which a word is the symbol) and total meaning that re-creates as nearly as possible the exact concept which the author intended as he wrote. Between this "getting the gist" and communication there exists a third ingredient—structure in language.

Language is made up of words, which are symbols for ideas; but it is also made up of a series of understandable structures. To understand writing—to read—these structures are an important element. Because these structures are so important, teachers of reading have made use of them, but this use has often been pragmatic and incidental. A re-thinking of the teaching of reading, taking into account the important elements of structure, should be profitable both for the theoretician and for the active classroom teacher.

A survey of the literature on the teaching of reading gives a very scant picture of the importance of structure in meaningful reading. The two best-known books presenting some of the implications from the study of linguistics on the teaching of reading (Lefevre's *Linguistics and the Teaching of Reading* and Fries' *Linguistics and Reading*) make suggestions of this nature, and most of the standard textbooks and workbooks make use of some of the principles of structure in the reading programs which they suggest. However, there does not appear to be in print a discussion which brings together ideas about the patterns of the language and the application of these patterns to improved reading.

Language is composed in four stages and ascending complication; the step from one stage to the next is a system. A clear understanding of these systems can make reading a simpler process; therefore a teacher of reading should consider the systems in teaching reading technique.

The sounds—that is, the noises which signal differences in meaning (pat, sat, gat). The sounds are symbolized in writing by graphemes or letters. In English, analphabetic language, the sounds are written to form words.

The system here is called phonetics and spelling.

The words of the language—the groups of sound (graphemes in writing) which have come to symbolize specific ideas.

The system here is called syntax or grammar.

The sentence—groups of words put together to communicate concepts.

The system here is called rhetoric.

The composition—groups of sentences assembled into paragraphs and larger units of communication.

Under the name of phonics and in a rather reversed fashion (since in phonics the grapheme—or written symbol—is the basis for classification instead of the sounds themselves—which are fewer in number and are more fundamental in communication) the patterns of sound are covered in most modern reading instruction. It is sad that many school systems have seen fit to adopt presentations which do not take into consideration the advances in understanding language made during the past two decades, but at least most primary teachers do present sound as a basis word recognition. In the past five years, however, great strides have been made in understanding the relationship between speaking and spelling. No longer is it necessary to present (in point of fact, it is now criminal) English spelling as a chaotic and happenchance affair which can be conquered only by rote memory. There are patterns in sound-spelling which make English a largely phonetic language—that is, one which is written as it is said. (The basic principles on which much of this work is based were suggested by Robert A. Hall, *Sound and Spelling in English,* Chilton, 1961. These concepts have been put into schoolroom form in such texts as the SRA reading series, the McGraw Hill-Sullivan Series, or the D. C. Heath Miami Series). Despite the fact that the sound-meaning approach is of limited use in adult and college reading programs, recent innovations in seeing the orderly system which exists merit close attention from the reading expert.

In the words of the language, or the semantics, it has long been the practice to teach the importance of structural analysis. One of the chief methods for presenting vocabulary has been a study of affixation—the importance of prefixes and suffixes in the understanding of a multi-syllable word. A primary misconcept, however, has made this instruction more difficult than it need be: the suffix is only rarely a unit of meaning but is, instead, a unit of grammar or part of speech. In the normal classroom presentation, the four words—atom, atomic, atomically, and atomize—have each been accompanied with a separate definition. In point of fact, there is really no meaningful difference in referent among these words. The base idea–small particle–is the same: the difference comes merely in the part of speech signalled by the suffix. The common element–the root word–gives the semantic meaning; this idea is all the definition necessary. Differences in grammar do not result in differences in idea conveyed; these variations are of use in understanding the meaning of the sentence but not in the understanding of the word itself. In many reading workbooks, stress is placed upon the interchangeability of parts of speech; such emphasis could well be the chief point when the principle of the suffix is taught.

In the area of rhetoric (the structure of the largest units of communication–composition) considerable emphasis is placed upon structure in manuals of instruction and in reading textbooks. Such instruction is usually found under the heading of "scanning"; it consists of directions about how to ascertain the meaning of a "story" or "article" without reading all the words in the passage. Devices such as "topic sentence, transition, structural prediction, illustration, and summary" are used as springboards to quick understanding. In point of fact, such teaching usually uses the structure of the exposition as its point of departure, and that decision has practicality because much of the reading which one does (unless he is reading for pleasure when he does not want to shorten the process) is discussion of fact or opinion. There are, however, other forms of writing which have structure and in which the understanding of the basic plan of the whole will contribute to facility in reading.

In reality, the use of the expository pattern for the scanning of types of writing other than exposition often results in misunderstanding. The exposition is designed to examine the evidence, both pro and con, about a given topic and to draw conclusions from the evidence examined. On the other hand, the argumentation is designed to present only the evidence for or against an idea. Scanning an argumentation from the frame of an exposition makes the conclusion from the presentation seem much more authoritative that it actually is–the evidence seems preponderant. Again, realization of the basic patterns inherent in the "personal essay," puts what is being said into the proper prospective [*sic.*], since the pattern makes clear that the purpose is to expose the writer's mind rather than his facts.

On the other hand, it is perfectly clear that much modern writing is not being done according to the textbook rules of classical rhetoric, and often the English teacher insists on a form which really is not there. A number of scholars are working on the patterns of modern rhetoric; from their work may well come a revision of patterns which can be incorporated into reading instruction. (See Kenneth Burke and his disciples. An interesting example of modern rhetoric is W. Ross Wenterowd's new *Rhetoric & Writing*, Allyn and Bacon, 1966).

In the field of syntactical or grammatical structures little precept or practice is given in most reading instruction. Such experience as occurs with different sentence patterns is pragmatic; there may well be a sentence followed by a series of sentences which are variations on the words in the original sentence. The instruction is to tell whether the exercise sentences agree or disagree with the first one. The aim is worthwhile, but decisions are made on an instinctive, subrational level where improvement is the result of rote experience.

In one sense, all of the following sentences mean the same thing:

The visiting teacher gave the lecture close attention.
The visiting teacher gave close attention to the lecture.
It was the visiting teacher who gave close attention to the lecture.
The lecture was given close attention by the visiting teacher.
Close attention the visiting teacher gave the lecture.
To the lecture the visiting teacher gave close attention.

Viewed more realistically, however, although all are about the same idea, they do not say the same thing. Within the framework of the "old grammar" differences were labeled "style," and style was instinctive, the result of arbitrary choice. (This is not to say that in the old grammar each of these could not be analyzed as different patterns, but the patterns *existed;* they were inherently connected neither with the purpose of the writer or the effect on the reader.) With the framework of the New English, the first sentence, above, is a basic sentence; the others are variation (or transformation), each in a recognizable pattern and done for a recognizable effect.

The terminology current in grammatical instruction during the years of development of reading instruction as a school tool (and during the training period of many "reading experts") may be a reason grammar has contributed so little to reading instruction. It is perfectly possible to discuss music of "the big beat" with the classical vocabulary of Bach; it is possible to give instruction for the manufacture of plastic furniture with the "hammer, saw and chisel" of the wood-carpenter, but the communication is not very efficient, and the verbal picture is apt to be unflattering because so many negatives result from the dis-similarity. In much the same way, classical grammar can discuss English, but the language is often the esoteric jargon of the specialist, and the traditionalist finds himself disapproving much that he finds in modern writing because "it does not follow the rules."

Within recent years the development of a linguistically oriented system of discussing the structure of English has made it possible to substitute logic for much of the rote memory so often typical of [illegible] old grammar class. Some modern grammarians still present the facts of language structure as interesting little parlor tricks which can be done in speech or writing, but others are working out a system in which "the reason for" accompanies the "existence of" the principles of language generation. This system is by no means complete. There is even less agreement on terminology among the "new" syntactians than among the "old." However, if modern grammar does what it sets out to do, it describes how language *does* work; and grammatical philosophers have furnished insight into "why it works like it does." Many of the concepts of modern grammar offer clues which can help a reader to understand what he reads.

English, written or spoken, is composed of structures. Some of the words in the structure are the beams and rafters—they carry the idea burden of the communication (these are called *content* words); others are the nails and the bolts which hold the communication together (these are the *function* words which have only grammatic significance.) An expectation that these latter words will have "meaning" simply confuses the reader; they cannot be defined in any terms except structural. Try, if you will, to "define" the meaning difference among "but," "however," and "since."

These content and function words are combined, by syntax, into sentences. The sentences are designed to convey *concepts* of varying complexity. Overpowering in the traditional English class has been the demand of "correctness" whether or not the form of the words used followed conventional patterns. In the evangelical fervor of the dedicated teacher, the "nit-picking" about the case of a pronoun was often more important than clearness of communication. Nobody ever misunderstood "It was me" while "The teacher asked each of the students to find his notes" was never clear. The new grammar presents principles by which communicatory symbols may be recorded and relegates to its proper (and important place) the details of "upper middle class dialect" by which the educated person makes known the fact that he belongs to society.

Traditional grammar is at best a system by which that which has been written may be proof-read. The new grammar, generative in its purpose, presents a system by which ideas and concepts may be recorded, altered, transformed and combined, in order to say precisely what the writer has in mind. I do not contend that a study of the new grammar is either easy or simple. The books by some of the savant "names" in the field appear to have been written in the Cabot and Lodge principle; if the author has communicated with a child or a filling station attendant recently, he certainly has abandoned the technique when he talks about grammar. But writing is done well by combining words into recognizable structures of syntax (forget Freshman English when "correct grammar" was the ability to choose between "who" and "whom" and recognizing when to put a period over the comma to get a semicolon), and reading is the reverse of writing. The reader must recognize the significance of the structure present and *then* fill the structure with the ideas the words symbolize.

The thesis being presented here is that a reader can understand, both more quickly and more efficiently, a sentence when he recognizes the pattern in which it is written and knows the purpose of that pattern. It is further suggested that, within the framework of "modern grammar" there are a number of concepts which could give real insight into the meaning of reading, and that there is real opportunity for a reading teacher to investigate those concepts and construct teaching devices which will be of considerable help to students.

A Brief (and Fragmentary) Summary of Modern Grammar

English shows its grammar in three ways:

- Word Order (dominant)—the place, or *slot,* which a word fills in sentence
- Inflection (being decreased) change in spelling and/or pronunciation to show grammar.
- Function Word—special words having no external meaning and designed only to show relationships.

Markers are "signs" carried by words to show their grammar.

- Some markers are affixes; they usually tell the part of speech as well as sometimes other ideas. Two words, one with an "s." If the "s" is on the first, it is a plural noun and the second is a verb. If the "s" is on the second, the first is a singular noun and the second is a verb, end in "ic" is a modifier-adjective. end in "ly" is a modifier-adverb. end in "ize" is a vert. etc.
- Some markers are function words. The *head word* following a preposition is a noun. The head word following "a," "an," and "the" (determiners) is a noun.

The elements of a communication may be divided into words (symbols for some sort of idea) and phrases (more than a single word, all of which symbolize an idea).

- Phrases are of two kinds:
  - Headed phrases—groups of words symbolizing an idea in which one word (called the *head word*) could do the grammatic job of the whole phrase: *the feeble old Indian man—could have been walking.* (Have fixed word order)
  - Headless phrases—groups of words symbolizing an idea (which must be used together—in clumps) but there is no *head word* in the phrase. *to town, when it came, who was here, walking home, him to ask favors, etc.*
- Words are divided into two groups:
  - Content words—which refer to or symbolize some idea, quality or action, which have meaning in themselves, which have a referent—they symbolize something outside the individual—full words.

Substantives—nouns—name words. Subdivisions are count and non-count, common and proper, mass—all divisions probably made to show definiteness.

Action words—verbs—words which show action or provide for an expenditure of energy. The word BE acts as this group does in many ways, but because it is so different, it is considered as a separate class.

Modifiers—words designed to alter the meaning of one of the two previous classes. When the word is used with a noun it is called an *adjective;* when it is used with a verb it is called an *adverb*. Much of these classes are interchangeable, but sometimes they carry part of speech markers. (in a few cases there are pairs of words—*good and well*). The difference is significant only in distinguishing between two and three slot sentences (see later discussion) or in the rare cases when word order does not make the modification clear. *slow schools—slowly schools*

Function words—sometimes called empty words. Their only 'meaning' is reflected from the words around them. They are designed to show grammar and not meaning.

Pronouns—place holders—they are words which can take the slot of a noun, but they only occupy the place and take any meaning which they have from the noun replaced, called the *antecedent*.

Auxiliaries—these words, usually at one time real action words, may be added to a verb to make specific or definite some grammatic idea about the action; together the auxiliary + the verb form a headed phrase.

Tensifiers—words used with modifiers to make specific the degree of modification. They, too, were most often once modifiers, but now they merely show plus or increase (intensifiers) and decrease (detensifiers). There is a dominant pattern called *comparison*, but other words not falling into a pattern do much the same job: *much, very, quite, pretty, etc.*

Determiners—words which make the following head word a noun: *a, an, the, this, that, personal pronouns, etc.*

Prepositions—words designed, in the most part, to show case; prepositions 'hook' one word, called the object to another word in the sentence.

Connectives—linkers, designed to show relationship between ideas in the sentence. Characteristic relationships shown are equality-inequality and positive and negative. Both these words and prepositions are designed to be vague, definite, or very definite in the relationship which they show. Some other words may do a double duty; as well as being connectives, they may serve another purpose. Pronouns such as *who and these;* adverbs such as *when and since* are examples.

Emotion words – interjections – howlers – show feeling and neither meaning or grammar.

Words are combined into larger units called sentences. In English there is one dominant pattern (about 90% of the cases) and several minor patterns. Minor patterns are following different structure than the major one; they are not, thereby, non-sentences.

Minor sentence patterns include
- equative–*Like father, like son. Rome, rum, ruin (slogan)*
- reportive–*42-22-40. 6'4", 180 lbs.*
- answers–*Third house on the right.*
- exclamatory–*John, Principal.*

Actor-Action Pattern–the major pattern.

Such a sentence depends on the fact that there are four slots in an English sentence pattern; not all must be filled before the sentence is complete.

The basic slots in the English Sentence are

ACTOR *quick action*
from home
gave
ignorant
Principal
GOAL 1
his favorite
GOAL 2
a big raise which she did
not deserve

Modification rules:
1. Add single words before the words they modify
2. Add headed phrases after the word they modify
3. Indicate violations of these rules with commas.

Basic Sentence Patterns:

ONE SLOT Sentences–either an ACTOR or an ACTION–may have modifier.

Actor–*Lordy–Good Lordy*–Usually vulgar or profane.

Action–*Help–Help quickly*–modifier comes after action word.

TWO SLOT Sentences–An ACTOR and an ACTION, may have modifiers. If there is a one word modifier of the action, it usually comes last.

With a verb–*John walks (quickly)*
(fat old) men eat (slowly)

With the non-verb *God is* (possible, not good)

THREE SLOT sentences–the ACTOR and the GOAL may refer to the same item or different items.

(1) $N_1 + V + N_2$ A *The coke hit the spot.*
B *The tired teacher hurried home.*
(2) $N_1 + V + N_1$ *The gracious teacher is a lady.*
Adj_1 *The superintendent is insane.*

BE may be used only in Pattern (2) I am the best in town.

FOUR SLOT Sentences—All four slots are filled; the pattern differs if the GOALS name the same thing or different things.

(1) $N_1 + V + N_2 + N_3$ *The young teacher bought herself a dress.*
(2) $N_1 + V + N_2 + N_2$ *The young teacher painted her lips*
Adj_2 *red.*

BE cannot be used in a FOUR SLOT Sentence.

Grammatic Problems solved by Basic Sentence Patterns.

The Copulative Verb

Perhaps the fact that this sort of verb is the one used in Three Slot (2) patterns is a simple way of distinguishing the special usage.

Pair Word—lie-lay, rise-raise, sit-set.

Lie, rise, and sit are only used in Two Slot Sentences.

Lay, raise, and set are only used in Three Slot Sentences.

Verbs of Sensation—feel, seem, and appear, etc.

The peculiarity of these verbs is that they change their meaning; each of the meanings may be used only in one Basic Sentence Pattern.

Two Slot—*He feels badly (with adverb)*
Three Slot (1)—*He feels wood. (2nd noun)*
Three Slot (2) —*He feels bad. (with adjective)*

If the Two Slot Pattern is completed with an adverb, the adverb must have a distinctive adverb MARKER.

Basic sentence patterns may be made longer (and thereby express more exact or definite ideas) by two processes: SUBSTITUTION and TRANSFORMATION

Substitutions—are made when a headed phrase is substituted for one of the words in a slot. These headed phrases are *head words* other words, but all express a single idea.

substantives and modifiers — The superintendent bought supplies. The *easily impressed superintendent* bought *useless school supplies*

Verbs and auxiliaries—the board hired teachers.

At the bar-b-q, the board *could have been hiring* teachers.

Transformations—are changes in basic sentence patterns in order to convey different ideas. The words essentially remain the same; the grammar changes. The difference in ideas is grammatic.

SINGLE SENTENCE TRANSFORMS—changes made in one sentence—*Teacher wrote Check—Basic sentence*

Emphasis Transforms

Actor emphasis—expletive phrase.—*It is the teacher who wrote check.*

Action emphasis—*do* auxiliary. *Teacher did write check.*

Goal emphasis—passive voice. *Check was written by teacher.*

Under Three Slot Patterns (1) that this pattern may be divided into two parts. The division is on the basis of whether or not a Goal Emphasis transform may be made.

(1) a (can make)—*Teacher wrote check*
Check was written by teacher.
(1) b (cannot make)—*Teacher walked home.*

Question Transforms

Leading Question—"yes" or "no" answer.

Rising inflection—*Teacher wrote the check?*

Function word—*Teacher wrote the check, didn't she?*

Auxiliary first—a two step transform—first substitute a headed phrase for the verb.

Teacher did write the check.

Then put the tense bearing auxiliary first.

Did the teacher write the check?

Information Getting Question—requires sense answer.

Substitute a Question Word for the information wanted.

Who wrote the check?
What did the teacher do to the check?
What did the teacher write?

Negative Transforms

Add *not* or *n't* to the auxiliary. Cannot be made with a simple verb but requires a headed phrase substitution.

The teacher didn't write the check.

Certain verbs, which may be auxiliaries or real verbs, can take the negative.

can't, won't, shouldn't, etc.

BE verbs usually can take the negative.

isn't, aren't, wasn't but not amn't (am not)

Periodic Transforms. When, without change in grammar, a word is lifted out of the end of the sentence and put at the beginning.

A check the teacher wrote.
On the bank the teacher wrote a check.

MULTIPLE SENTENCE TRANSFORMS—More than one sentence is combined to show EQUALITY or INEQUALITY—coordination or Subordination. *Teacher took heroin. Teacher lost job.*

COORDINATION TRANSFORMS—the ideas are of equal importance.
- Additive—the compound sentence
  - *Teacher took heroin; (and, but, etc.,) she lost job.*
- Parallel—simple sentence with one or more slots duet.
  - *Teacher took heroin and lost job.*

SUBORDINATION TRANSFORMS—embedding—one sentence is made a part of another by occupying a place in the pattern.
- As Modifiers
  - Of Nouns *Teacher who took heroin lost job.*
  - Of Verbs *When teacher took heroin, she lost job.*
- As a Slot filler
  - Gerunds, infinitives, and "noun clauses"
  - *taking heroin—to lose job, that she took heroin.*

Adult Literacy -- Progress and Problems

Robert L. Curry
University of Oklahoma

The problems associated with developing a literate adult citizenry plague the people of the United States as well as those in other countries of the world. The percentage of our adult population who are considered illiterate is much lower in the United States than in many other countries; however, the percentage of *adult* illiterates in the United States is also higher than it is in some of the foreign countries. The results of the recent census reports indicate that approximately 11 per cent of our adults are illiterate. Regardless of how we compare with other countries, in terms of the percentage of illiterates, the problems which are created because of the sizable number of illiterate adults are staggering in their effect on our economy and the lives of these illiterate individuals.

The undesirable effects of illiteracy are not restricted to the illiterates. Every individual within the society is affected to some extent because illiteracy is closely related to unproductiveness, poverty, disease, and low moral standards. Illiteracy is also responsible for weakening our nation's security (many young men cannot serve in the Armed Forces), retarding technological progress, reducing our nation's wealth, preventing cultural progress, creating suspicions and superstitions, and retarding world understanding and cooperation. (1)

The terms "literacy" and "illiteracy" have many and varied meanings. These different meanings have been established as a result of the different criteria which have been used to determine the literacy level when census reports were taken. However, in the past the term "functional literacy" has generally been used to refer to the development of reading and writing skills comparable to a fifth-grade level of education—determined only by the individual reporting attendance in school to the fifth-grade level. A person with this level of reading and writing skills was considered capable of functioning successfully in our society. At the present time, "functional literacy" is used to refer to a person who has acquired the reading and writing skills which are equivalent to an eighth-grade level of education. This is also being determined by the number of years reported in attendance in a school. Everyone is aware that the number of years in school does not truly represent the level of skill development attained by an individual. In fact, those who are not achieving at a satisfactory level are the ones who tend to be the drop-outs. The change from the fifth-grade level to the eighth-grade level as a criterion for literacy was brought about because of an awareness that it is becoming increasingly difficult for the individual with less than an eighth-grade level of education to be an effective person in our society—as a head of a household, as a citizen, and as a worker.

Automation, brought about by advanced technology, has reduced the demands in our society for unskilled workers. Today, less than five per cent of all jobs are available to the unskilled worker. What will the percentage of unskilled jobs be in the coming years? Many of the jobs which are now manned by unskilled workers will become obsolete in the immediate forthcoming years. A very rapid trend in this direction has been observed during the last two decades. What will these unskilled workers who are incapable of being trained for another job do when they are displaced by automation? Will they be able to support themselves and their families or will they become parasites on our society? The new technology with its rapid and continuous change is demanding constant on-the-job training for most workers to remain abreast of the changes in most occupations. The current prediction that each individual will have to be re-trained three times during his lifetime points to the need for a literate adult citizenry. The unemployment figures indicate that there is not a deficit of available jobs; there is a deficit of trained and qualified personnel to fill these available positions. The development of the basic communicative skills through Adult Basic Education programs will enable many of the illiterate adults to prepare for another occupation or be trained for the changes in the present occupation or vocation brought about by the new technology.

What efforts have been made in the past to reduce the number of illiterate adults? Very little has been done as a means of reducing or eliminating the vast number of illiterate adults. There have been different periods in which the problem was recognized and some effort, usually minimal and futile, was made to cope with the problem. During war periods the illiteracy problem has received attention because of the high rejection rate of young men who could neither read nor write at a satisfactory level to be inducted into the military service. The military inducted some of the borderline cases and provided training in the basic skills for them. In some states the problem of the illiterate adult has been recognized and state programs have been devised to provide for the development of the basic communicative skills. In most instances, the available state funds for such a program have been so meager as to prevent the program from having a resounding impact on eliminating or significantly reducing the number of illiterate adults. Another attack on the problem has been made through volunteer groups. Usually only a very few illiterate adults were involved in these programs, and the volunteers were poorly trained to cope with the problems of instruction. The volunteer instructors were relatively uninformed of the characteristics of the illiterate adults and experienced great difficulty in working effectively with them. Effective instructional materials were not available which provided for the sequential development of the basic skills and which were of sufficient interest to the adults. As a result, many of the adult enrollees dropped out of the programs because their needs were not being met. However, the volunteer groups should certainly be commended, for they recognized the problems associated with illiteracy and its effect on the individual and society. They attempted to provide a program when professional educators were giving little attention to the problem. The volunteer instructors gave of their own time and money in quest of a solution to an insurmountable problem. All of their efforts were not in vain, for many of the adults did significantly improve their basic skills.

What efforts are now being made and what programs are now available to the illiterate adult? At no time in our history has there been such a concerted effort to significantly reduce the number of illiterate adults in the United States as we are currently experiencing. Under the Economic Opportunity Act of 1964, any person 18 years of age and older who had not had adequate schooling was offered free schooling to improve his basic skills. During the two-year period, 1964-1966, $27,000,000 has been spent to set up adult education classes. In the 1965-1966 academic year, there were approximately 373,000 adults who received instruction in the basic skills. For the current year, $40,000,000 has been authorized (only $30,000,000 has been appropriated) for Adult Basic Education programs. Of the $30,000,000 which has been appropriated for the current year, approximately $3,000,000 to $6,000,000 is to be available for special experimental and demonstration projects and teacher education. Congress has also authorized $60,000,000 for the instruction of adults during the 1967-1968 academic year.

The number of adults currently enrolled in educational programs and the large appropriations for Adult Basic Education programs present a rather glowing and encouraging picture of the attack on illiteracy and poverty in the United States. The desirability of these programs and the resulting effects on the illiterate adults attending such programs should not be minimized. However, the surface of the problem has barely been touched. There are currently over 8,000,000 adults twenty-five years of age and older with less than five years of formal schooling and 22,000,000 adults twenty-five years of age and older with less than eight years of formal schooling. Even though instructional programs are being provided in all fifty states, only a limited number of states are instructing a sizable number of illiterate adults. Three states provided instructional programs for one-third of the 373,000 adults enrolled in classes during the past year. Although there is a difference in the population of different states and a difference in the percentage of the adults within a state who are illiterate, the fact remains that some states are not providing a program which will be far-reaching in its effect on the citizens of the state. Less than two per cent of the illiterate adults received instruction in Adult Basic Education programs during the past year. At this rate, approximately fifty-nine years will be required to provide basic skill instruction for illiterate adults twenty-five years of age and older who have less than eight years of schooling. This figure is based on the assumption that each enrollee acquired the skills equivalent to eight years of schooling. Many of the enrollees completed only Level I (skills equivalent to four years of schooling).

The major emphasis in this paper has been on (1) the progress which has been made; (2) the problems related to such a gigantic endeavor; and (3) the effect which illiteracy has on the ability of the individual to acquire and retain a job. We need not deceive ourselves by contending that each individual who learns the basic communicative skills will profit in a monetary manner. We must recognize the value to be gained by the individual who will profit only in a self-satisfying manner. The influence which many of the adults will have on their children and grandchildren may be of much greater value in reducing illiteracy than we will ever realize or be able to measure.

REFERENCE

Literacy Education. United States Department of Health, Education and Welfare, Office of Education, Circular No. 376, Washington 25, D. C., June 1953.

Basic Literacy Programs for Adults: A National Survey

Wayne Otto and David Ford

Research and Development Center
for Learning and Re-Education
The University of Wisconsin

In the early spring of 1966 we began a critical evaluation of materials available for teaching basic reading to illiterate and marginally literate adults. The present survey was begun when we decided that it would be useful to know more about the programs in which such materials were being used. We set out first to find out what was being done at the state level, but it soon became apparent that specific information could be obtained only from direct contact with local programs. The purpose, then, was to obtain specific information about basic education programs for adults, and the end result was this survey of selected local programs in 36 states.

PROCEDURE

Letters of inquiry regarding adult basic education programs were sent to state directors of adult education in all 50 states. Local programs were selected from lists provided by state directors who responded. Total responses to questionnaires sent to selected local programs are given by state in Table 1.

Responses are not from a systematically chosen sample of programs; instead, they are responses from states and from local programs that had Title IIb programs underway and that chose to respond to our questionnaires. This, of course, limits the generality of the data. But, in defense of the method, it must be pointed out that during a time when new programs are being instigated each day even a systematic sampling with forced responses would have carried similar limitations. Also, the percentage of responses to questionnaires to local programs was high, approximately 71 percent.

Perhaps the reason for the high response rate was the brevity of the questionnaire. The form comprised less than two pages and, in general, responses to items were simply check marks or two or three-word statements. We sought the following information: location of the program, length of time the program had been in operation, prior education and sex of enrollees, level of instruction provided, total enrollment and materials used.

All results were in by June, 1966. The data, then, provide descriptive information regarding 367 adult basic education programs in 36

TABLE 1
Program Sampled by State

State	Number of Respondents	State	Number of Respondents
Arizona	13	Nebraska	3
Arkansas	17	Nevada	7
California	14	New Hampshire	6
Colorado	9	New Jersey	10
Connecticut	14	New Mexico	8
Florida	9	New York	22
Georgia	7	North Carolina	23
Hawaii	5	Oklahoma	4
Illinois	11	Oregon	14
Iowa	12	Pennsylvania	19
Kansas	7	Rhode Island	8
Kentucky	15	Tennessee	8
Maine	12	Utah	5
Maryland	14	Virginia	7
Massachusetts	8	Washington	11
Michigan	11	West Virginia	9
Minnesota	3	Wisconsin	4
Missouri	14	Wyoming	4

Total Programs Sampled = 367

states in the spring of 1966. The results are interesting and, we hope, worth noting.

RESULTS AND DISCUSSION

Results are summarized in a series of tables. Grand totals given in the tables are not always equal because they reflect total respondents to specific items on the questionnaire. Respondents did not always give information in regard to each item. We thought that older, established programs might have certain characteristics that would set them apart from more recently developed programs; therefore, we sought information that would enable us to categorize programs by age. We assumed that programs that had been in operation for more than two years prior to June, 1966, had been established before the current impetus for adult basic education programs and that programs less than a year old may have been established in response to current federal legislation. Information regarding program age is given in several contexts.

Background information on adult students in programs categorized by age is given in Table 2. Respondents were free to check more than one description of their students, and this fact is reflected in the totals by rows. No gross difference in student composition of programs of different ages is apparent. However, two trends can be seen. First,

TABLE 2
Enrollee Backgrounds by Age of Program

Enrollee Background	Age of Program: More than two years	More than one but less than two years	More than six months but less than one year	Established less than six months prior to completion of survey (June, 1966)	Total responses in each category[a]
Mainly immigrants	14 (.20)[b]	9 (.17)	12 (.10)	16 (.13)	51 (.14)
Some immigrants	30 (.43)	13 (.25)	31 (.28)	36 (.29)	110 (.30)
Mainly dropouts after age 16	21 (.30)	14 (.27)	41 (.35)	36 (.29)	112 (.31)
Some dropouts after age 16	18 (.26)	19 (.37)	22 (.19)	62 (.50)	121 (.33)
Mainly dropouts before age 16	28 (.40)	22 (.42)	56 (.48)	21 (.17)	127 (.35)
Some dropouts before age 16	12 (.17)	9 (.17)	14 (.12)	—	35 (.10)
Others	2	—	—	—	2
Total Programs Reporting	69	42	117	124	

[a] A single program may have reported in more than one category.
[b] Percentage in parentheses.

fewer of the newer programs report immigrants in their student bodies. Second, there seems to be a trend toward fewer dropouts before the age of sixteen in the newest programs. Possible reasons for both trends are apparent: the recruitment appeal of newly established programs is not generally to the non-English speaking adult, but rather to the marginally literate adult; and compulsory school attendance laws limit the supply of dropouts before the age of sixteen. One other point is made in Table 2: about two-thirds of the programs surveyed were established within the past year.

The average enrollments and the sex of enrollees are given by program age in Table 3. As shown in Table 2, about two-thirds of the programs surveyed were established within a year of the survey;

and the data in Table 3 show that the new programs are still relatively small. Whereas the average program over two years old enrolls an average of 410 students, the average enrollment in the newer categories is 245 and 74. Furthermore, there is a distinct trend for the newer

TABLE 3

Program Size and Sex of Enrollees by Age of Program

Age of Program	Program Data			
	Sex	Number of Enrollees	Percentage by sex	Average number of enrollees in a program by sex
All programs		92,383		
		(361)		
	male	42,236	.458	117
	female	50,147	.542	139
				256
Over 2 years old		27,912		
		(68)		
	male	10,603	.38	156
	female	17,309	.62	254
				410
Less than 2 but more than 1 year old		20,075		
		(51)		
	male	9,063	.45	177
	female	11,012	.55	216
				393
More than 6 months but less than 1 year old		27,956		
		(114)		
	male	14,056	.502	123
	female	13,900	.497	122
				245
Less than 6 months old		9,320		
		(125)		
	male	4,758	.51	38
	female	4,563	.49	36
				74
No date of establishment given		170		
		(3)		
	male	85		
	female	85		

programs to include more men. The impact of recent federal legislation and funding is, of course, obvious.

It is heartening to see that more men are being recruited by basic education programs. The most immediately apparent economic payoff of basic education programs is likely to come as these men become employable. This is not, however, to belittle the contribution better educated women can make. The payoff may be delayed as much as a generation, but the effects may be more sweeping. The fact that men are coming into the new programs now seems to be a good indicator of success in overcoming men's reluctance to go back to school. The war on poverty probably has a more masculine appeal than have many previous efforts; and the fact that many new programs are housed in other than traditional school settings undoubtedly helps men to overcome their reluctance to return to school.

Level of instruction provided is shown by age of program in Table 4. It seems clear that few programs of any age are providing instruction for illiterates. This may reflect the fact that there are relatively few completely illiterate adults outside of institutions; or it may be indicative of inability to work with illiterates or lack of success in recruiting them. Perhaps the explanation includes aspects of each. On the other hand, few of the respondents claim to be offering instruction at

TABLE 4

Level of Instruction Provided by Age of Program

	Age of Programs				
Reading Level	Over two years	More than one but less than two years	More than six months but less than one year	Less than six months	Total Responses by reading level
Illiterate	1 (.01)[a]	1 (.02)	1 (.01)	5 (.04)	8 (.02)
1st-3rd grade	44 (.65)	31 (.58)	61 (.54)	49 (.39)	186[b] (.51)
4th-6th grade	22 (.33)	21 (.40)	51 (.45)	70 (.56)	166[c] (.46)
Above 6th grade	1 (.01)	0	0	1 (.01)	2 (.01)
Total Programs Reporting	68 (.19)	53 (.15)	113 (.30)	125 (.35)	

[a] Percentage in parentheses.
[b] Includes one program not reporting date of establishment.
[c] Includes two programs not reporting date of establishment.

beyond the sixth-grade level. This demonstrates our success in reaching the programs we hoped to reach. The trend for fewer new programs to offer basic level (Grade One through Three equivalent) reading instruction and for more of the newer programs to offer instruction at the intermediate (Grade Four through Six) level is interesting. But again, whether this reflects the difficulty of offering basic instruction, recruitment idiosyncrasies, or level of more urgent need is not clear. Of course, an entirely different hypothesis can also be suggested: perhaps the marginally literate young adults coming into new programs are generally able to read at better than beginning levels. This might be expected on the grounds that schools are making greater efforts both to retain students and to provide remedial help for those with learning problems.

The final item on each questionnaire asked for information regarding teaching materials. The publishers most frequently mentioned are given in Table 5. It was not possible to tell which specific materials were used if a publisher has several instructional programs to offer. It is clear, however, that certain publishers supply a substantial portion of the materials used. Many other publishers were listed, but not by an appreciable number of respondents. A fairly large number of programs, 45 or 13 percent, reported using teacher-made materials, and a substantial number admitted to using materials prepared for children. Of course both teacher-made and children's material can be useful in adult literacy programs if they are carefully chosen and adapted to specific needs; on the other hand, the use of either might simply be indicative of lack of funds, realism, or information. More explicit study of materials actually used in programs of various types will be worthwhile.

IMPLICATIONS

The value of this survey seems to lie more in its implications for further study than in its conclusive results. Although it is interesting to note certain trends, the general effect is to raise questions as to why the trends were demonstrated. At this point, then, it seems appropriate to enumerate some questions to which answers might profitably be sought. The proposed questions are illustrative; the list is not exhaustive.

1. What will be the growth rate of newly established programs? As noted, the newer programs have smaller enrollments than the established programs. It would be interesting to follow the growth rates of programs in different geographic areas, with different recruiting procedures, with different teaching procedures, at different instructional levels, etc. to see which of them are sustained, which grow rapidly, and which flounder. This kind of information would provide useful feedback for planning future programs and program emphases.

2. Specifically, what accounts for the trend toward more men in the literacy programs? Or is the trend due to the effect of relatively few

TABLE 5

Publishers of Materials, by Level,
Used in Substantial Numbers of Programs

	Publisher	Total and Percent Time Mentioned
Materials designed for adult basic education	Steck-Vaughn	148 (.41)
	Follett	143 (.39)
	Reader's Digest	133 (.36)
	Allied Ed. Council	114 (.31)
	Laubach	72 (.20)
	Holt	48 (.13)
	Teacher-made	45 (.13)
Materials designed for children	SRA	101 (.27)
	McGraw-Hill	22 (.06)
	Educational Development Laboratories	18 (.05)

programs? Answers would be useful in planning recruitment procedures to attract men to literacy programs.

3. Why do so few programs claim to offer instruction for illiterates? Why do the new programs offer more intermediate instruction while the older programs offer more beginning level instruction? It would be useful to know whether the reason reflects demand or limitations of the programs. If beginning instruction is not being offered because to offer it is difficult, then corrective steps are needed.

4. What actual use is being made of materials that were designed primarily for adults? What is the nature of the teacher-made materials that are being used? How well informed are local personnel regarding the current availability of instructional materials for use in adult literacy programs?

Answers to these and related questions would be useful because there would be consequent implications for the dissemination of information from state or federal agencies to local program personnel.

A Study of Dropouts from Adult Literacy Programs

Eunice Nicholson and Wayne Otto

Research and Development Center
for Learning and Re-Education
The University of Wisconsin

INTRODUCTION

The Problem. Title IIb of the Economic Opportunity Act offers to adults 18 years of age and older, the chance to attain an eighth-grade education. Of the adults who are eligible for the Adult Basic Education classes, some never attended school, others dropped out of school as children, and others failed to acquire even a minimal basic education despite prolonged school attendance. One of the most difficult tasks, according to Adult Basic Education teachers, is to entice marginally literate or otherwise inadequately educated adults to class and to keep them in the program.

In a recent national survey, it was discovered that the lower socio-economic class, which comprises most of the potential students for Adult Basic Education programs (1:V-4), was as aware as other classes of the value of education from a financial standpoint. Nevertheless, this class, which perhaps has the most to gain, was the least represented on the rolls of adult education classes. (3:241) A basic question, then, is why adults who apparently need it most do not choose to take advantage of instruction offered at no expense to them under Title IIb.

A related question, equal in importance, is why adults who have made the important decision to return to school drop out. Although much work has been done with dropouts from high school, few educators have been concerned with those who leave Adult Basic Education classes. Skeats (7:3), however, considers adult dropouts just as important as those from the public schools "because these mature minds are the stewards of future history or NON-history." Furthermore, the attitudes toward education of adults profoundly influence the educational aspirations of their children, making continuing education desirable in reducing the ranks of dropouts from high school. (8:9)

Once having overcome initial psychological barriers to enrolling in Adult Basic Education classes, why do some students drop out? What obstacles are preventing them from attending class? If some barriers to attendance can be determined, perhaps in the future provisions can be made to overcome them, making Adult basic Education more attractive to those who need it. Thus, the specific purpose of this study was to examine factors that caused adults to drop out of one particular basic education program. The focus was more upon external or situational factors than upon psychological ones, which are both more difficult to assess and less amenable to outside control. This study, then, might be considered a prototype for future research that should be done in evaluating Adult Basic Education programs.

Related Literature. The National Opinion Research Center (3) polled adults to discover their reactions to continuing education. The most significant factor determining participation in adult education was the extent of previous formal education. In surveying classes of differing subject matter a preponderance of those who had attended college was found in all types of courses. (3:80) Apparently, those who need education the most participate the least in adult education.

Age was found to be the next most important factor in participation, although education was nearly twice as influential. (3:105) In a test of disposition toward learning, the item "Feel too old to learn" was named 34% more often by older people (over 45 years of age) than by younger people in the lower socio-economic class. In the middle and upper classes it was named significantly less frequently even by older people. (3:218) It appears, then, that the lower class is most affected by the stereotype that aging impairs the ability to learn, although studies (4:4) have demonstrated that this is fallacious.

Also relevant is the fact that people of the lower socio-economic class favored vocational education. They chose courses conveying practical skills 22% more often, on the average, than the other classes which valued education for general knowledge as well as for utility. (3:237) Other writers (2:5) also list vocational aspirations—both job-seeking and job advancement—as key motivating factors in enrolling in Adult Basic Education. Other reasons for enrolling fall in the category of self-improvement, e.g. maintaining the parent image, aiding in religious study, and providing a social outlet. Finally, sometimes enrollment is in response to the request or requirement of a social welfare agency.

Neff (5:21) perceives economic poverty as directly related to non-participation in Adult Basic Education programs operating through the following factors: child care problems, minimum subsistence needs, lack of proper clothing, and need for medical attention. External or situational factors such as these were named most frequently by the lower socio-economic class as reasons for non-participation in continuing education; they listed psychological factors or unfavorable attitudes toward education less often. (3:220) It seems likely that such external factors may also cause adults to withdraw from educational programs.

THE STUDY

The Setting. A small city in central Wisconsin was the setting for the study. According to the United States Census of Population in 1960 (6:72), for the first eight grades the education levels of the city's population of more than 18,000 adults of 25 years of age and older were as follows:

None		*Grades 1-4*		*Grades 5-6*		*Grade 7*		*Grade 8*	
M	F	M	F	M	F	M	F	M	F
56	48	578	467	589	630	654	543	2,054	2,342

The need for Adult Basic Education within the community is apparent since a sizable number of people have not even attended school for eight years. The levels of educational attainment within the Adult Basic Education class itself are listed in descending order of frequency: Grades 10-12, no education, 4-6, and 1-3. The reading levels, as tested by the Gates Reading Survey, are also listed in order of frequency: Reading level 0-3, 4-6, and 7-8, the first category including more than twice as many students as the second.

The Adult Basic Education program was begun in January, 1966. Meetings were held on Monday and Wednesday from 7 to 9 p.m. The program included 50 sessions, or 100 hours, running until the last week in June. The two teachers, a reading teacher and an English teacher, were both associated with the vocational school where the class was held. One teacher also acted as the promoter and co-ordinator, recruiting students and planning the program.

Of the class, 38 students ranging in age from 18 to 60, was divided into two groups according to reading levels. Of the 38 students who enrolled at the beginning of the class, 16 finished at the end of June. The 22 students who did not come to the last class were considered to be dropouts, even though some of them enrolled in the program for the following fall semester.

Procedure. The head teacher provided data about each dropout in response to a questionnaire. The following information was requested:

Date enrolled
Date terminated
Age
Citizenship status
Sex
Last grade completed in school
Reading level
I.Q.
Vocation
Attendance
Reasons given for enrolling in the Adult Basic Education class
Reasons given for dropping out
Estimate of progress in classwork (test scores, if available)
Satisfaction or dissatisfaction with progress
Reasons for progress or lack of progress
Future educational and vocational ambitions
Marital status
Number of children and their years in school
Given money for transportation? Amount?
Given money for child-care services? Amount?

The investigator obtained a list of names and addresses of dropouts who were expected to be co-operative in discussing the program. To guard against frightening new or prospective students, only ten of the 22 dropouts were interviewed.

RESULTS

Because the number of subjects was limited, the results are presented informally in an attempt to illustrate the reasons typically given for dropping out of the Adult Basic Education class. In each case the reasons for enrolling in the class are also stated so that the intentions of the student may be more clearly understood.

Case #4, who was personally interviewed, revealed that he had to drop out of the program when the daylight hours were extended in the evening due to daylight-saving time. Being a gravel-truck driver, he was given the opportunity to work overtime in the evenings in the busy spring season. His reason for enrolling in the class was to gain enough competence in basic skills to advance to bookkeeper at the same company. His attendance was steady before daylight-saving time, and he was rated as a hard worker by the teacher.

Case #14 likewise stated that the daylight hours in the evening were needed for work. Being a farmer, he had enrolled so that he might be able to participate more in co-operative agriculture meetings. He felt that basic education would help him to manage his records and make him a better farmer. He, like Case #4, plans to return to class during the winter months.

In approximately four other cases, both city workers and farmers, the change to daylight-saving time was named as a factor in dropping out of class.

Another reason cited for dropping out of the Adult Basic Education class was lack of transportation. Although provision for transportation funds is made under Title IIb, Case #6 stated that she received the payments only at the end of each month. Because her only source of income was from Aid to Dependent Children, she could not pay for a taxicab unless she received the money at each class. In the interview this mother of three children gave as her primary reason for enrolling in the class the necessity of obtaining a job after her children are grown up when she will no longer receive welfare payments. Besides wanting to get out of the house occasionally, she also sought an education so that she would be able to keep up with her children when they enter school.

Since funds for child-care are not provided under Title IIb, Case #6 also could not afford to pay babysitting fees. Case #4, although a man, also stated that he could not afford to pay a babysitter so that both he and his wife could attend classes. Likewise, Case #29, although not a diligent student, could not attend regularly because she could not afford to pay for child-care with her small income from Aid to Dependent Children.

Case #5 also gave lack of transportation as a factor in dropping out. Although she did not live far from the school, her route was lonely and deserted at night. Another reason she offered for dropping out was that she was more advanced in basic skills than the rest of the class, which she felt was too large for much individual attention. She, like Case #6, had enrolled to qualify for a job when she will no longer be eligible for welfare payments. She also had wanted to prove to her children that she could learn—a goal she felt she had accomplished.

Case #3 also felt he was too advanced for the class. Although he liked the teachers and enjoyed the class, he criticized the program for not giving enough attention to the more advanced students. He had joined the class on the recommendation of the Vocational Rehabilitation Board. He did not make much progress, appearing lazy both to the teacher and to the investigator.

In another instance, Case #10, who had joined the class while laid off from work, was put on the night shift at the factory, and his work conflicted with the Adult Basic Education class. He was forced not only to work a full-time night shift, but also a part-time job during the day. Although he had responded well to instruction, he had no way of continuing his education. His desire to advance to a better job was blocked by the necessity of supporting his wife and eight children.

A change in jobs was a factor in at least two other cases. Other circumstances, such as moving and hospitalization, caused several other students to drop out of the program.

CONCLUSIONS

The results of this study confirmed the findings of the National Opinion Research Center that adults of the lower socio-economic class drop out of adult education classes mainly for external or situational reasons.

One salient factor was the switch to daylight-saving time, which allowed the extension of the working day. Since the adults could not afford to forego the opportunity to earn overtime pay in the city or to put in extra hours in farming, they had to leave the Adult Basic Education class. Class schedules could be arranged to make allowances for such seasonal shifts in employment and working hours. In the present setting, adult evening classes that run from late fall to early spring would seem advisable.

Another provision that might be incorporated into future programs is that payments for transportation and child-care be made at every class session. If the student were given the money at the beginning of the month, it might be spent for other items. Receiving the payments at the end of the month does not help the student when he needs it. Perhaps a petty cash fund of the exact amount needed by the class for transportation and child-care could be established with the provision that the teacher could draw out the necessary amounts on the day of each class.

An alternative to payment for child-care would be to establish a center for daytime and evening care, allowing both husband and wife to take advantage of educational opportunities. For mothers living on welfare payments, such a center would also allow them to leave the house occasionally.

The other major reason for dropping out of class was a change in shift or a change in job. This factor seems unavoidable unless industries give their employees paid time off for educational advancement. Skeats (7:4) has proposed that industries allow 20% of the 40-four week for voluntary education. Not only would the workers become better members of their community, but they might also prove to be a profit to the industry if, having gained competence in basic skills, they can advance to better positions.

The obstacles to attendance named above have stemmed from economic poverty. Some further implications for Adult Basic Education programs can also be seen.

Many of the students interviewed said that the class size was too large to allow for much individual attention. Even though the class was divided into two groups, the range of abilities within the groups was quite great. It was found in another study (9) that students with the least formal schooling need the greatest proportion of individual help. Although the ratio of nineteen students to one teacher would not be considered large in the public schools, the Adult Basic Education teacher can work more effectively with fewer students. The teachers had tried to reduce the ratio by asking members of their own families to assist in teaching, but clearly another qualified instructor was needed.

Other implications were perceived by the investigator, although they did not stem directly from talking to the dropouts.

Grouping should be flexible, each student being classified both by reading level and by arithmetic ability. Students should work only at their own level and in the areas of their personal need. The class work, furthermore, should be as immediately applicable as possible. Although a vocational orientation is not necessary, the student should be able to see how he can use his new skills to make a better life for himself. Help should be given in such practical matters as filling out income tax forms.

Finally, a person with a genuine interest in Adult Basic Education should be hired full-time to begin the program. To recruit students, the community agencies and industries should be contacted to build a list of possible students. The project head should be paid for work done outside of the classroom, such as following up the dropouts from the class. He should be permitted sufficient flexibility to make adjustments in scheduling and curriculum that seem advantageous to the class.

The teachers, furthermore, should be open and cordial. All of the students interviewed said that they enjoyed the friendly atmosphere of the classroom and that they particularly liked the teachers. Likewise, it seems of great importance to the student's progress that the relationships with the other class members be good so that a group spirit, dedicated to the progress of all class members, may be fostered.

The opinions of the dropout are important in planning future Adult Basic Education programs. Although psychological barriers to attending class can not be so easily overcome, the external or situational ones can be alleviated. Small matters like scheduling and supporting services can be combined into a set of conditions that make the difference between success and failure for an instructional program and for the student it is committed to serve.

REFERENCES

1. *Adult Basic Education: A Guide for Teacher Trainers*, Washington, D. C.: The National Association for Public School Adult Education, 1966.
2. Barnes, R. F., "Problems Facing Teachers and Administrators in Adult Basic Education Today," in *Teaching Adults to Read*, B. E. Chapman and L. Schulz, ed., Chicago: Allied Education Council, 1965, pp. 15-16.
3. Johnstone, J. W. C. and R. J. Rivera, *Volunteers for Learning*, Chicago: Aldine Publishing Company, 1965.
4. Lorge, I., *Psychology of Adults*, Chicago: Adult Education of the U.S.A., 1963.
5. Neff, M. C., *Adult Basic Education Seminar Guide*, Chicago: Follett Publishing Company, 1966.
6. *Procedures and Resource Manual*, Madison, Wisconsin: State Board of Vocational and Adult Education, 1965.
7. Skeats, P., *Case Against the Adult Dropout*, Boston: Center for the Study of Liberal Education of Adults, Occasional Papers, No. 11, 1965.
8. Watson, G., "Some Differences Between High Achievers and Low Achievers," in *No Room at the Bottom: Automation and the Reluctant Learner*, G. Watson, ed., Washington, D.C.: National Education Association of the U.S.A., 1963.
9. Wilson, M. C., and Gladys Gallup, *Extension Teaching Methods*, Washington, D.C.: U.S. Department of Agriculture, Extension Circular 496, 1955.

[1] The research and development reported herein was performed pursuant to a contract with the United States Office of Education, Department of Health, Education and Welfare under the provisions of the Cooperative Research Program. Center No. C-03/Contract OE 5-10-154.

More Than One Way To Develop Lifetime Readers

M. Jerry Weiss

Jersey City State College, Jersey City, N.J.

This presentation is a humble attempt to raise questions and to present issues in a sincere, realistic search to find a way or ways for developing as many lifetime readers as possible. I honestly believe that the development of lifetime readers is the ultimate goal of every reading teacher/specialist in this country.

Let me begin by raising the question of a philosophy for developing an effective reading program. As I visit many secondary schools, talking to reading and other content teachers, I find very few places where a philosophy for these programs has been developed. For example: In "X" community, all seventh-graders who aren't taking a foreign language are expected to take "DEVELOPMENTAL READING." Why? Well, what else do you do with such students? Isn't this what Conant suggested?

(Aside: "Take French. Only the 'slower' students take reading.")

Is this how we develop lifetime readers?

Example #2: Take the situation where *a* reading teacher has identified *120* students who are two or more years below grade level, and all of these students have average or better than average intelligence. Which students should he take? He is assigned six classes—20 students apiece—to solve their problems. Will it work?

I could go on and on listing situations—common ones in my section of the country—in which there is very little thinking through of what a reading program should accomplish.

I am convinced that an effective reading program is concerned with much more than skill building. There is much more involved than opening a workbook to page 17 and proceeding from there; or more than taking the olive card and working the exercises; or more than flashing things on a screen. There's much more to be done than reading a "reading text" and answering the questions at the end of the chapter. How do we get reading teachers—more often selected on the basis of need rather than training or experience—to know the dangers of such pitfalls?

To develop lifetime readers we are concerned with interests and attitudes. We are concerned with critical thinking. We are concerned with active and creative involvement. Lifetime readers are excited by words and ideas. They feel the impact of language within them. They enjoy thinking. They realize that reading can be fun and purposeful. It is not drudgery. Therefore, we reading teachers need to provide a variety of experiences and activities that emphasize the pleasures of reading and success in the reading process.

Look at the involvement and critical thinking which take place when students discuss and debate issues pertinent to them based on their experiences and readings. When reading can substantiate or challenge a point of view, real thinking begins. When students dramatize scenes from books they have read or reveal through other means what impact reading has had upon them, we begin to help students realize the peculiar nature of personal perception. But what is more personal than reading? What is more beautiful than the experiencing of "self-discovery" through the media of print.

"Hey, teach, I read a great book!" These are words that really excite me.

So, I believe deeply in reexamining our high school reading programs to see just how much reading is taking place which will instill in our students a sense of pleasure and personal satisfaction.

Another issue confronts me. Is reading a separate subject? I believe it is the core of learning. The poor reader has academic cancer. Yet, in so many high schools teachers are not aware of what "reading is all about." Why? Have teacher-training institutions failed?

Let's look at this situation for a moment. Bob is in eleventh grade and is reading quite a bit below grade level. He spends five hours a week in the reading clinic. A most congenial teacher, well trained, works with Bob. Meantime, back in academic reality, Bob goes onward and downward in English, social studies, and science. He is expected to keep up with his assignments in all *other* important subjects when he is a known problem reader. How? What miracle pill can anyone prescribe? No wonder he is a potential drop-out. How much failure can anyone continue to face?

Guidance and testing are a major part of most high school programs, but how many teachers use the results of adequate and meaningful diagnosis? Wouldn't it be easier to ignore these kids? Maybe we can put them all together in one room and they'll vanish. Meaningful diagnosis is the key to effective instruction. All teachers need to note the results and recommendations. Also keep in mind how many foolhardy people place key emphasis on test results as the means of evaluating the effectiveness of reading instruction.

I argue that reading is *not* a separate subject. Reading teachers can be most helpful in spending their time by working with content teachers in helping them do a more effective job within their classroom. Teachers need help in learning how to use diagnostic information. They need help in learning how to provide for individual and group differences. There is a scarcity of available reading teachers. I would strongly suggest more of their time be spent with helping classroom teachers do a more effective job than in working solely with special cases. Without cooperative planning and follow-up, much is lost.

When students can see the positive results of reading instruction applied right in their content classes, they have much more of an optimistic feeling about their efforts. Reading is *not* isolated. It is *the* way of learning. The real problem here is to get high school content teachers to realize their responsibilities in teaching reading. In-service education or special reading committee assignments can be most helpful.

Tied in with this issue is the need to help teachers to realize that this is no longer the age of the single text. Our students bring many experiences, ideas, and problems with them. We should use a multi-text, as well as a multi-media approach to learning. I don't believe there is any one book used in our schools which will save every soul. We need to help teachers to realize this.

If we were to help teachers to use a thematic approach, we would help all of our students, regardless of their reading level. For we would provide reading materials, now so readily available through the impact of the paperback revolution, for each student, in all content areas, at any level of interest and ability.

In this age of three major explosions—population, nuclear, and knowledge, is there any justification for a single text approach? With the problems of human differences so apparent, how long can high school teachers ignore their responsibilities of providing for such differences? Reading teachers and guidance personnel, by the very nature of their training and human sensitivity, need to help teachers to develop thematic units, based on student needs, interests, and abilities.

When I speak of units, I do not mean "canned units." These are materials which are already packaged and ready to be imposed upon students. I mean units which are developed with insights of a particular class by a particular teacher. Units which are conceptually or thematically organized allow for a wide range of reading, writing, speaking, and listening experiences which can be interesting, provocative, and most worthwhile.

Such units encourage "self-selection" to fulfill reading and learning assignments. A sense of independence and of self-responsibility is instilled. Students may work together to solve a common problem. The teacher serves as a valuable resource to encourage students to think, to explore, to select, to synthesize and analyze.

How different our results might be in developing lifetime readers if we helped students to explore on their own the magnificent world of print! Right now more books are sold through book clubs than any other single medium or effort. Isn't it depressing to think that our best efforts go into having a prominent figure tell America *this is worth reading this month?* What a failure it is to have a few dictate the tastes of so many. Have we succeeded to develop independence in reading?

When I speak of reading, I'm not just speaking of best sellers. I want students and adults to go on and read beyond *this year* in any subject. I may major in English, but isn't it important that I should continue to read in social studies, science, philosophy, etc.? Can I isolate myself in this modern age of technological and sociological problems? Where do I get guidance to read beyond? Isn't this the responsibility of the teacher to whet my appetite so I will read forever and ever?

I want to recognize that we are living in the age of mass media. Television programs, radio, movies can and do stimulate discussion. Such discussion and reaction, if properly channeled by alert and sensitive teachers, can motivate reading. Science fiction programs can lead to the study of scientific fact and fantasy as revealed in literature.

Look what a student's interest in Stone's *The Agony and the Ecstasy* might do in art, literature, and social studies classes.

Lifetime readers are more often people who have found success and pleasure in being sensitive to the nature and values of language. They can laugh and learn. They enjoy the world of ideas and experiences as presented by writers.

Reading can stimulate. (Note the prominence of sex and violence in popular best-sellers.) Language is itself dynamic. From the writings of such authors as Stuart Chase and Hayakawa we have become more aware of semantics and the effects of language upon people.

When reading stimulates, provokes, challenges, amuses, then the reader is involved. It is this involvement that makes for lifetime readers. The emotionality of reading, the inner-experience of reading, the personal glow of reading is the essential ingredient of satisfaction and self-motivation to continue to search, to think, to act, to live with appreciation and understanding. (How many teachers have felt the emotionality of reading?)

In summary, I think high school reading belongs in content areas. Here teachers need to broaden their perspectives to realize that one year of any subject is to help *each student* to find pleasures, purposes, and the processes of a particular field. It is not the be-all in these "explosive" times. Today's facts may be outdated tomorrow. Yet our students need to be aware of their resourceful responsibilities and capabilities as they face tomorrow's challenges. Book reports are artificial and dull. Reading must be more personal and dynamic, and it is the teacher's role to stimulate this development.

The role of the reading teacher is to view the total reading program and process in terms of the newest research findings in psychology, language arts, perception, and child development. The education of a reading specialist is much more complex than ever before as he learns to cope with the challenges of poverty, illiteracy, apathy, dropouts, and delinquency. He must be more experimental, flexible, resourceful, creative, and above-all child-centered in his search for truth and knowledge. There have been too many false claims about the miracle packages of certain programs. He should remember materials are just tools for certain jobs, for certain situations, and with certain effects for certain children. Let's stop the either-or wars. We need to be much more professional in our search for materials to help all children to develop in and through reading.

The reading teacher needs to work with content teachers to help them assume the major responsibility in cooperative planning and implementing of programs for youth. Reading instruction to be meaningful needs reinforcement, and the student needs to feel the results of his efforts. Helping teachers through in-service programs can be the major contribution of the reading teacher today. He can be most instrumental in helping re-shape curriculum and instructional techniques so that all students have a chance to learn and to grow in all content areas. Only if students see success in reading, purpose in reading, will they develop positive, lifetime habits.

As we move into a new perspective of reading philosophy and program implementation, we have come to realize that we are not only concerned with skills, but also with attitudes and interests. The modern world with its pills and pressures, its thrills and threats, needs ways in helping youth to find themselves, in their worlds of special challenges and concerns. The search for meaning in life may help other generations to discover personal hopes and values through reading. Surround our students with books—paperbacks, trade books, books that chill and challenge, that shock and stimulate, that pervade and persuade, that move and make the marvelous mind. We want readers who are creative and active, who are self-selective and independent, who are critical, who are sensitive to the nature and values of language. In a world of mass media, we need to examine the impact of the printed symbol in the modern world. Films, television, records, tapes bring literature and world situations to life. Reading can add the dimension of depth and research on the path for accuracy and clarity. Don't blame other media for those who don't read. (Remember there are many who can read who don't. We might have been doing something wrong.)

Developing lifetime readers is not easy. It requires greater efforts, a broader perspective of our job, and a radical revolution in our overall approach. I urge a "think-big" attitude which will cause all teachers to focus on the responsibilities and pleasures of bringing books and students together beyond this year's superficial texts and for life in a literate-hungry, peace-striving world.

The Use Of Federal Funds In Secondary Reading Programs

Eleanor M. Ladd

Pinellas Co. Schools
Clearwater, Florida

The 89th Congress appropriated 5.68 billion dollars for elementary and secondary education, 2.36 billion dollars for the current year and 3.32 billion dollars for the next year. The final bill authorized 1.4 billion dollars for Title I to provide aid for children of the poor, $129 million for Title II for textbooks and school library resources, $180 million for Title III supplementary educational centers, $30 million for Title IV to strengthen regional educational laboratories and research and $25.5 million for Title V to strengthen state departments of education. With the exception of higher education, there is more money for education in all of these categories this year than last year and over-all there will be more money next year than this year. Only as we use these funds wisely can we defend continued support of this magnitude. Certainly, we reveal a great deal about our values and our understanding of how children learn by the expenditures we make.

Of all Federal funds, the greatest amount of local autonomy was provided in Title I programs. Florida, which has 67 county school systems, chose to spend the greater portion of Title I funds on the improvement of reading instruction. A wide variety of approaches were used, but I'd like to tell you just a little about the way Pinellas County spent Title I funds. Believing as we do in prevention rather than cure, the bulk of our million-dollar allotment was spent in the kindergarten and primary grades. Teacher aides, in-service education, classroom libraries, supplementary reading programs, audio-visual equipment and listening centers were provided. Of these expenditures the sums spent on teacher aides and in-service education are the two most highly regarded expenditures in the eyes of the reading teachers.

Pinellas County established a corrective reading program in 1955 which now services sixteen hundred children in two clinics and forty centers. The personnel has grown steadily more interested in trying to understand basic perceptual problems of seemingly normal children. In order to find part of an answer, a small amount of money was spent in two mobile "Perceptual Screening and Training" vans. Using four schools as controls, two interested teachers are providing visual perception training for one hundred children. The children were selected on the basis of their performance on the Bender-Gestalt Test as judged independently by three psychologists. Dr. George Spache is serving as our consultant and is assisting us in limiting the content of the training program. It will be a number of years before definitive answers are available.

A sufficient amount of money was spent on the secondary reading programs in twelve ESEA schools to up-grade the quantity and quality of the offerings to the extent that some attention can be given the needs of individuals. An analysis of the expenditures follows:

	Jan.-June, 1966	*1966-67*
Salaries	$34,126	$100,223
Equipment	11,214	7,646
Supplies	36,779	9,258

Within the salaries category are included expenditures for supervisory salaries, four teachers' salaries, twenty-two teacher aides (at $1.40 an hour), and consultant fees. Equipment encompasses telebinoculars, controlled readers, record players, tape recorders, overhead projectors, screens, typewriters, stop watches, and learning stations. The supplies category covered diagnostic materials, reading materials, filmstrips, professional books and tapes. As often happens in writing Federal projects, we neglected to include a sufficient amount to cover the cost of administering the program. We also neglected to take into account the additional load of the new machinery on our supply of electrical current and the increase in cost of the same.

During the first half-year of the existence of ESEA funds, we attempted to open our school libraries in the eligible schools after school hours and on Saturday. For a number of reasons it was decided that the benefits received by the children were too limited to warrant continuation. However, the summer library program proved unexpectedly popular.

From the teacher's point-of-view expenditures were allotted as follows:

	Jan.-June, 1966	*1966-67*
Professional books	$ 30.00 (per school)	$ 12.00
Test materials	150.00 (per teacher)	70.00
Skill development and audio-visual materials	700.00 (per teacher)	175.00
Classroom library books	250.00 (per teacher)	85.00

It is apparent the proportion of money spent on people heavily out-weighs that spent for equipment and supplies. Believing as we do that Dr. Shiffman was right in his thesis that it is *people* who make the difference, this made sense to us. We added as many people as we could find who were well qualified and then concentrated on in-service education for all reading teachers in the designated schools.

With a full-time reading staff of twenty-five reading teachers and five additional teachers who spend part-time in reading, our twelve ESEA secondary schools have been assigned twenty-two teacher aides.

Whenever you establish para-professional positions you struggle to clarify roles and responsibilities. Under Florida law, an aide cannot be charged with the responsibility of a classroom. The teacher may delegate responsibilities to the aide but must be present at all times. The following may give a general idea of the range of responsibilities handled by aides:

1. Typed tests, outlines, etc.
2. Assisted with audio-visual equipment
3. Helped students with time and progress charts
4. Worked on bulletin board
5. Scored objective-type tests
6. Prepared mimeographed materials
7. Checked daily attendance
8. Performed housekeeping duties
9. Collected information for inventories
10. Helped with individual lessons and materials
11. Assisted students in the library
12. Helped make games and flash cards

Guidelines had to be established immediately covering the many inter-personal relationships possible in a school day. Aides were not to assign letter grades, nor discuss grades with students, nor have parent-teacher conferences, nor use cumulative folders in the office, nor have after-school duties, etc. One general caution seems necessary to the use of aides. They should be assisting students in gaining a greater degree of independence; therefore, the aide should not be doing anything for the students which they can do for themselves. Aides add to the professionalism of the teacher when well used and provide additional flexibility and individualization for the students.

The second aspect of the secondary reading program which has been most successful is the in-service education program. From January to June, 1966, six Saturday workshops were held for teachers, four steering committee planning and evaluation sessions and two workshops for teacher-aides. Approximately the same plans were made for this year. One measure of the effectiveness of these efforts can be attested to by the fact that most of the personnel attended a non-reimbursed week-long workshop during the summer. Some of the activities included in these workshops follow:

1. Evaluation of materials and equipment
2. Consultation with outside expert
3. Display and demonstration of favorite materials
4. Discussions on roles and responsibilities
5. Multi-disciplinary staffing
6. Discussion of types of reading programs (developmental, corrective and remedial)
7. Use of professional books and reference materials

8. Study of content area skills
9. Problems of the disadvantaged student
10. Evaluation meetings involved with all phases of program

I understand that there is to be an elementary guidebook for evaluation available in January from the U.S. Office of Education. A thorough evaluation will be enlightening, but there is evidence of change in our secondary reading program that it is a pleasure to note. The principals have been convinced that assigning fewer students to corrective and remedial classes brings results. Also, schools are freeing secondary reading teachers a period a day to work with content area teachers in a variety of ways.

In spite of small problems such as insufficient number of electrical outlets, storage facilities and shelving space, we have been most appreciative of the effect of ESEA money on our secondary reading program. It has permitted more opportunities for one-to-one contacts during each period and has supplied the equipment which has enabled the teacher to plan the instructional program for the individual student with his style of learning in mind. Now, if a student learns best auditorily there is a tape recorder, a record player, a listening center, and a single concept cartridge available for his use. It seems more possible to provide an instructional program to meet the needs of more students.

More assistance in evaluating educational equipment will soon be available from an organization recently formed to be called Educational Products Information Exchange. Headed by Nils Wessell, former President of Tufts College, the Exchange will attempt to supply information on new materials. Some of you may already have received questionnaires to fill out regarding your use of a wide variety of equipment. The materials are arriving at such a pace that an evaluating agency may prove helpful. Let us use them wisely!

Diagnosing High-School Students' Reading Problems

Robert M. Wilson
University of Maryland

By the nature of the assigned topic, we will be discussing a limited population of high-school students, the problem readers. Many definitions of the term *problem reader* have been offered. I shall clarify the term by stating that any student who reads so poorly that he cannot make effective use of the books used in his classes is, indeed, a problem reader. It is about these students that I am speaking.

The discussion in this paper will be limited to three basic questions in the diagnosing of high-school students' reading problems: 1. What is to be considered in diagnosis? 2. What techniques can be used in diagnosis? 3. How can a high-school teacher make effective use of diagnostic results?

DIAGNOSTIC CONSIDERATIONS

There is general agreement concerning the aspects of diagnosis which may be useful with high-school students having reading problems. Johnson, (3:48) for one, lists them as reading level, reading capacity, and strengths and weaknesses. The area of attitude toward reading is also important. The first consideration usually mentioned is determination of the approximate level at which the student can function successfully. Approximates are about all we can hope for when using teacher-made or standardized tests since the application of a given grade level from a test source to the actual reading situation is extremely suspect. As we have checked the readability level of books designed and advertised for a given grade level, it has become obvious that advertised grade level fluctuation is great. If a student were to be listed as being at eighth-grade instructional level, it would be presumptuous to assume that he could read all books assigned to eighth-grade classes. Many of these books will prove to be too difficult for effective reading. The teacher and the diagnostician must be alert to the variability in reading material at any given grade level so that grade-level diagnosis is not misused. Therefore in classroom situations constant attention must be given to the appropriateness of a given book in meeting the reading levels of specific students. Limited by confusion of the term *grade level* by both educators and publishers, it would be this speaker's opinion that less attention should be directed to the determination of level and more to the other considerations in diagnosis.

Another important consideration is the capacity of the child to read. There are two ways of using assessments of a student's capacity. One is to assume that his capacity level is a reasonable limit beyond which the student should not be urged to perform. This use implies that capacity can be accurately assessed and is not changeable. The other view is that capacity is not static, that things can be done to improve capacity, and that capacity level should be viewed as a temporary level even when measured accurately. From the latter view, the teacher is urged to provide the kinds of experiences that seem to improve a child's capacity. If a student is checked with a reliable group instrument purported to measure non-reading capacity, the teacher should use that level as an indication of approximate capacity at that time. He should attempt to instruct the student to reach those suggested levels and, at the same time, should provide experiences to improve that capacity. It is to this latter view that this speaker holds. In fact, in light of this speaker's definition of a problem reader, i.e., one who cannot read his books effectively, a student should not be denied remediation as a result of a low capacity score alone.

An evaluation of the student's strengths and weaknesses when considering his reading skills is another consideration in diagnosis. This speaker would suggest that the constant awareness of skill development in terms of strengths and weaknesses is, in fact, the most important diagnostic information available. From this point of view, we would simply say that as a child reveals a noticed strength, the reading teacher should assist the child to develop, refine, and make optimum use of that strength. At the high-school level, the strength of a student may be of lasting importance to his success in school. The better these strengths are developed, the better the chances of school success. When a weakness is noticed, instructional efforts should be made to correct the weakness. Corrected skill weaknesses tend to raise the level of reading and often are reflected in increased capacity levels. Perhaps from this viewpoint, with all students having problems being treated in light of their skills, less consideration needs to be given to the assessments of the student's reading level and capacity.

A final aspect of diagnosis which is more subtle and more difficult to measure is the area of attitudes. Does the student read at a level appropriate to his capacity, not show indication of skill weaknesses, but, at the same time, do poorly in class and in reading assignments? Of course, the approach to this student's problem is considerably different from that of a skill-deficient student. Remember too, of course, that he does remain a problem to the classroom teacher. Another complication encountered in an attitude diagnosis is that most high-school students who are seriously deficient in reading skill demonstrate undesirable attitudes toward reading. Of course, both skill and attitude deficiencies complicate diagnosis.

DIAGNOSTIC TECHNIQUES

Having established four areas for diagnostic considerations, let us turn our attention to diagnostic techniques for each area.

Levels. The running argument whether to use standardized or informal measures appears to persist. Charges and counter-charges relative to the merits of each technique may lead one to assume that one type of measure should be used to the exclusion of the other. However, the answer is that both are used in the diagnosis of high-school students' reading problems. Diagnosis of reading level usually begins when a teacher notices the student having difficulty. A standardized test can serve as a valuable tool at this point. While we are all aware that extremely high or low scores are unreliable, low scores do indicate starting points, and may also indicate evidence of strengths and weaknesses in the skill areas. Once relative levels are established, informal testing with a book or two which the student will have to use, will be effective. By sampling selections from books which will be used for instruction, it is possible to glean needed information concerning the student's abilities and skills as they relate to specific materials. At the secondary school level, consideration can also be given the *cloze* test (1:403) technique in which the ability of the child to read any given book is informally checked by his ability to supply words which have been omitted. Information thus obtained can prepare the teacher for the amount of assistance that may be needed with specific materials.

Capacity. Perhaps the quickest and most effective measure of capacity in reading can be found by testing the child's listening comprehension, his auding (4:35). The auding of words and of sentence and paragraph meaning can be done either informally or with available instruments such as the Peabody Picture Vocabulary Test or the Spache Diagnostic Reading Scales. When results of a capacity test are suspect, individual intelligence tests present the most reliable and valid information. However, a test of auding ability will provide a useful estimate of capacity for reading when individual intelligence test scores are not available.

Strengths and Weaknesses. Every type of reading situation should be used to determine the high-school student's strengths and weaknesses. Diagnosis must include the consideration of the student's ability to recognize isolated words, to read selections orally, and to respond to selections read silently.

Through the analysis of word-recognition errors, it is possible to determine the type of weakness the student has with his word-attack skills. His level of ability on a word recognition test can be most helpful in establishing the diagnostic plan from that point. It will help to indicate the types of testing needed to complete the diagnosis and it will help to indicate the level of such testing.

Oral reading will indicate how the student recognizes words in context. In reading orally the student is often not afforded the opportunity to reinforce his recall facilities as he might in silent reading; therefore, the student's recall ability should not be stressed in oral reading. The examiner is concentrating on the student's error patterns and his level of successful performance.

Silent reading should be followed by carefully constructed questions which help to determine the ability of the student to read for details, main ideas, inferences, sequences, and critical evaluation.

A look at the student's strengths and weaknesses in these three reading situations will provide the teacher with the information necessary for initial instructional purposes.

Attitudes. As mentioned before, attitudes constitute a subtle area; therefore, the diagnosis of them is a subtle process. The difficulty is shown by several well-established points: interests and attitudes vary from day to day; questioning techniques tend to lead students to predetermined areas; interests are often controlled by attitude. Consideration of this topic is basically one in which we evaluate the student and if he can perform in skills and at levels appropriate to his capacity, we consider that the problem is one of attitude. From there we attempt to interview, talk out, and use relatively subjective evaluations for diagnosis. Strang (5:256) suggests the use of an informal sentence completion test. I agree with the effectiveness of these devices but hold their reliability suspect. Extensive interviewing and observation, which often lasts well into the instructional phase of work with a given student, will be called for in most cases in which attitude diagnosis is needed. With some students attitude problems do not become obvious until instruction has begun.

Making Effective Use of Diagnostic Results. In most areas, diagnosis can be conducted simply and informally. Diagnosis must be continuous and ultimate diagnostic conclusions be reached only during the instructional program. For example, while a diagnostician might establish a tentative instructional level for a student, that student's instructional level should be determined more precisely during instruction—hopefully, it will continue to change. To create an effective learning climate then, the teacher should start the child working at a level which shows that he can succeed and then move him toward more difficult material. This attitude of flexibility should prevail when working in both the areas of capacity and skills.

A record of diagnosis is important (2:70). This will eliminate a teacher having to recall at some later date a report previously given orally. Such records should include the noting of basic diagnostic data in uncomplicated language so that a teacher need not call upon a specialist for interpretation. Often a graph-like presentation is most helpful when it is followed by specific recommendations for classroom instruction. It surprises me to note how much useful diagnostic information is passed on by word of mouth only, therefore becoming misused and misinterpreted as well as forgotten.

Classroom teachers should be aware that diagnosis is conducted to provide them with information which will enable them to assist the student in reading. It is not to be construed as criticism of their abilities as teachers. The aims of diagnosis are to place the student in appropriate material, to save the time expended in using the trial-and-error method, and to alert the teacher to the child's strengths and weaknesses.

PROBLEMS

Diagnosis of high-school students is not without its peculiar problems. First, we notice that many students have been tested previously and are not receptive to additional testing. The previous diagnosis may have been inappropriate or the follow-up of it may have been inadequate. Having developed the attitude that testing is a useless procedure, many high-school students make less than a full effort during the diagnostic reading. Obviously, the results of diagnosis during which a full effort is not achieved are unreliable.

Other students develop unusual axiety about testing. Perhaps they do not want to be placed in special classes for reading help or perhaps home pressure for higher grades or for college entrance have them upset to the point that the tests reflect more their anxiety than their skills.

As a result of the wide range of abilities in reading found in the average high-school classroom, the problem of selecting appropriate group testing materials is always difficult. As we all know, the testing of a student who has fifth grade skills with a test designed for Grades 10, 11 and 12 produces no useful results. It is the testing of students with inappropriate instruments that encourages many to attack the tests as inadequate. For secondary students we often find it necessary to administer a test designed for elementary children. The test must be easy enough for the student to make numerous correct responses and must be difficult enough for him to fail on numerous responses. There can be no measure of the student's strengths and weaknesses unless these ideas are adhered to.

Finally, the attitude that diagnostic results are not the business of the content-area teacher is a serious problem. Tact and a fine sense for human relations are often necessary to assist a high-school teacher to make effective use of diagnostic results. It is possible, however, to reach most of these teachers, thereby creating better learning climates for many high-school students.

Staying in tune to the possibilities for diagnosis of high-school students with reading problems will assist all of us to make the type of classroom adjustments which will most benefit students.

REFERENCES

1. Anderson, Jonathan, "Research in Readability for the Classroom Teacher," *Journal of Reading*, May, 1965, 8:406.
2. Bamman, Henry A., Ursula Hogan, Charles E. Greene, *Reading Instruction in the Secondary Schools*, New York: Longmans, Greene, 1961.
3. Johnson, Marjorie S., "Reading Inventories for Classroom Use," M. J. Weiss (editor), *Reading in the Secondary Schools*, New York: Odyssey Press, 1961.
4. Strang, Ruth, *Diagnostic Teaching of Reading*, New York: McGraw-Hill, 1964.

1966 Review of Research in College-Adult Reading

Emery P. Bliesmer

The Pennsylvania State University

The research reports receiving treatment in this year's annual review are, for the most part, ones found reported in the literature from the time of preparation of last year's review through September, 1966. Several earlier reports which were overlooked previously by, or were not available to, this reviewer have also been included. The number of references found pertinent for, and listed in the bibliography of, this year's review, 121, is the largest number ever to have been used in these annual reviews; and this despite the fact that several sources which usually contain a number of pertinent articles, including the *Yearbook* for last year's meeting of this conference and the *Proceedings* of the 1966 annual IRA meeting, were not yet available at the time of preparation for this review. As has been done previously, the various reports have been treated under a few (five) broad major headings, with some rough subgrouping within the broad headings.

PROGRAMS (REPORTS, EVALUATIONS, SURVEYS, METHODS)

As has been the case in previous years, many reports found in the literature have included information concerning specific college and other adult reading programs (1; 6; 8; 13; 17; 18; 20; 23; 27; 30; 32; 35; 40; 43; 46; 47; 53; 56; 61; 71; 90; 91; 92; 93; 94; 95; 107; 110; 118; 119). However, reporting of actual or on-going programs appeared to be one of the major purposes in only a very few reports (30; 35; 43; 46; 47; 90; 118). Pre-college programs were involved in a number of reports (1; 8; 53; 61; 119), programs with industrial personnel in four (43; 46; 47; 56), listening training programs in two (17; 46), and remedial English programs in two (44; 110).

Evaluations of programs were reported by a number of writers (including 8; 20; 30; 32; 35; 40; 43; 47; 53; 56; 71; 90; 91; 93; 94; 105; 119); but here, again, the major focus was on evaluation aspects of programs in only a few. Bowman's evaluation study (8) involved one of the programs in which the criterion of later academic achievement was used (8; 20; 40; 53; 93). When he compared an experimental group of students who had participated in the University of Colorado's pre-college program for high school students with a matched control group, he found that later academic achievement of the experimental group was lower than that of control group students and that eventually 26 of the control group, while only 15 of the experimental group, were graduated. Bowman concluded that the pre-college program had not done anything to improve the performance of students who participated.

Reactions of program participants were indicated as having been obtained by a number of investigators (91; 105; 110; 118). Over three-fourths of the University of Miami students involved in a freshmen composition course thought the short remedial program sequences, selected from five different commercially programmed instruction materials, were helpful. (105) Many of the foreign students who had participated in Howard University remedial reading programs indicated, in their final evaluations, that they had received benefits from the program. (118)

Fleischer (30), in discussing the testing and remedial reading programs at the Fashion Institute of Technology (New York), reported that "upward" but not significant, changes had occurred. Glenn (34), describing the reading programs in a community college, reported that "almost all gained" in rate, vocabulary, and comprehension. Ray (92) investigating permanency of gains, found that two college reading program groups had each gained significantly in *Nelson-Denny Reading Test* scores at the end of the program. One group showed no loss when retested three months later. The second group was found to have maintained significant gains in rate and vocabulary when retested six months later; observed, but not significant, gains in total reading and loss in comprehension scores were noted also. Eye movement patterns of 190 subjects, selected randomly from a Purdue University reading course population of almost one thousand, were found to have changed significantly during the course. (Eye movement patterns were recorded with an electro-oculograph at the beginning and at the end of the sixteen-week reading course.) Reading rate had changed significantly also; but comprehension had not. (94)

Among points Buffone (13) interpreted as major ones in his analysis of questionnaire survey data obtained from 96 state colleges and universities were that "developmental aspects" apparently received major stress in college reading programs, that standardized achievement tests were used most frequently in selection of students for courses, and that the majority of programs reportedly used a combination of methods. Hipps' analysis of replies received in his questionnaire survey study of freshmen English programs in North Carolina colleges (44), revealed improvement of writing skills sufficiently for satisfactory performance in other courses was a major purpose of such programs and, while considered to perform remedial functions, programs were not considered remedial courses; that reading, listening, and speaking skills were not greatly emphasized; that literature and language were stressed, with literature stressed to greater extent and language being dominated by rhetoric and grammar; that freshmen were felt to be better prepared for performance in freshmen English than they were five years previously; and that schools with attendance predominantly Negro spent more time on communicative skills and less on literature than at other schools. There were no indications of a trend toward abandoning remedial English, which was offered by approximately forty per cent of the institutions, 87.5 per cent of those attended mainly by Negroes and 24 per cent of those attended primarily by white students.

Among programs involving industrial personnel was a Purdue University developmental reading course with 26 United Automobile Workers (43). Course work involved reading and taking tests on timed printed and film essays and reading independently with the Shadowscope. Significant gains were not made in either measured speed or comprehension scores. Hollingsworth (47) discussed results of an in-plant training program (weekly 3-hour sessions for 16 weeks) for improving reading of industrial personnel (carried on over a period of four semesters with 180 women and men). It was reported that the average beginning reading score *(Cooperative English Test)* was at the 46th percentile; after training, the average reading score was at the 54th percentile. Hollingsworth also conducted a listening improvement course, two-hour sessions for twelve weeks built around a text and various other materials, with two groups of middle management personnel in a large industrial organization. (46) Both groups showed significant improvement on *Brown-Carlsen Listening Comprehension Test* scores.

One of the college reading programs which involved comparison of methods or approaches was that conducted with University of Missouri (at Kansas City) freshmen. (20) The reading group, which participated in a ten-weeks reading improvement course, made significant rate and comprehension gains as measured by exercises and practice materials used. The first semester grade-point average of the reading group was significantly higher than that of the orientation group (which had participated in an eleven-weeks, one-hour-a-week, non-credit course on notetaking, writing papers, taking tests, and planning study time—but no work on reading skills) and a control group not enrolled in a special class of any kind, with the difference between the orientation and control groups not being significant. The grade-point average of the reading group was still significantly higher at the end of the second semester; at the end of the third semester it was still significantly different from that of the control group but not from that of the orientation group. An experimental group of Brigham Young University freshmen who had participated, in groups of four or eight, in counseling sessions in which academic ability, standing of students, and appropriate study skills were explained, was found to score significantly higher than a control group on both a pretest and a posttest of study skills (93); but there were no significant differences between the two groups in grade-point average for either the first or second semesters. It was also found that a larger number of the control group returned to school the second semester.

In a program reported by Jones (56) in which groups of male industrial executives used both group and individual equipment, or only group commercial equipment, or no commercial or mechanical equipment or devices, significant differences were found in reading test scores between a control group and each of the three experimental groups at the end of a sixteen-hour program and also eight months later; but no significant differences in either immediate or delayed results were found between any two experimental groups. Canute (17) did not find any one of three different methods of teaching listening to freshmen in various study skills groups of the University of Wyoming superior to any other in terms of grade-point averages or *Brown-Carlsen Listening Test* results. He concluded that incidental listening training was acquired to a high degree by study skills program participants. Trismen (108) found that the rhythmic music reading achievement of sophomore female students at a New York university taught by a maximal speed pacing technique (involving pacing set by progressively faster metronome beats) was not superior to that of a control group taught by a pacing technique which did not require a maximal response rate.

READING AND STUDY HABITS, TRAITS, AND SKILLS

Several studies were concerned, in general, with the status of skills of various college and other adult groups (2; 26; 59; 66; 73). In a study of overachieving and underachieving college students, Kicklighter (59) found 37 per cent overachieving and underachieving in reading and 16 per cent overachieving and underachieving in language skills, while 35 per cent were overachieving and underachieving in mathematics and total achievement. In a study involving electromyographic techniques with surface electrodes, and in which college students read French passages of increasing difficulty, significant differences (over reading control material) were found in chin and lip movements and breathing rate, with audible vocalization decreasing to none at the college student level. (73)

Approximately nine per cent of the essays written by a representative sampling of 324 college-graduate officer candidates at the U.S. Naval Officers School were classified as "fail," 22 per cent as "border line pass," and 69 per cent as "pass" (in terms of criteria set up by school staff) (66). It was concluded that approximately ten per cent of college graduates can be expected to fall below minimum requirements in English composition skill, regardless of the college program pursued, the administration of proficiency tests, or the size of the school.

Allman (2) reported, in the *Journal of Negro Education*, an investigation of three groups of graduate students enrolled during several summers who had been administered Rinsland's *Test of English Usage*. He found that the students' low level of achievement in English skills was "obvious"; that students showed serious problems in punctuation, word use, verb forms, grammatical rules, and principles of paragraph unity and coherence: and that students matriculating during the latter part of the period of this study failed to show improvement over those of earlier summers. Winston (118) reported that over a five-year period approximately one-third of the students entering Howard University scored, on the *School and College Ability Tests* and the *Cooperative English Test*, below the norms set for successful college study.

Dugan (26) reported, in a symposium presentation of data, that during one administration period for a composite test used by an employer of college graduates in the East only ten per cent of 104 graduates of Southern Negro colleges qualified for consideration at the next employment stage; during a second administration period, only 3 per cent of 270 graduates passed. Approximately half of 3,400 graduates of Northern integrated colleges passed during the same period. Greatest differences between college groups were found on vocabulary and reading comprehension tests (with 53 per cent and 40 per cent of Southern college students falling below the fifth percentile for Northern students). Differences between groups were found to be much less marked on abstract reasoning than on vocabulary. Dugan pointed out that anecdotal evidence indicated better on-the-job performance of Southern college students than test scores would indicate.

The needs, skills, or habits of foreign students were discussed in several reports (32; 74; 104; 118). Among the main problems reported by 147 foreign students at the University of Oregon were writing reports and essays, taking and organizing notes, and participating in course discussions (104). Among the least troublesome problems listed were locating information in the library, understanding lectures, and understanding textbooks. One fourth of the entering group of students at Howard University was reported as being comprised of foreign students, who scored as low as about the lowest percentile band, or even lower, on the *School and College Ability Test* and the *Cooperative English Test* (118). In this report Winston discussed in some detail the remedial reading program set up for the foreign students and the problems occasioned for the students by language transfer and adaptations, students' resistance to remedial work and emotional frustration, and cultural heritage differences.

When Fry (32) compared the progress of African university students after an eight-weeks reading course to that of United States college and adult students in comparable courses, he found for African and American groups, respectively, average improvement of 197 and 232 words per minute in reading rate and 12 per cent gain and 2 per cent loss in comprehension. McKillop and Yoloye (74), comparing reading test scores of Nigerian college students with comparable American students, found no differences in vocabulary test scores; but comprehension and rate scores were lower for Nigerian students.

Several studies had a bearing on needs and attitudes of groups concerning reading and study habits and skills (22; 64; 86; 120). Dobbs (22) found, through an interview survey of adults in Indianapolis declining and non-declining areas, that the most frequently expressed dominant aim in both areas was of an economic nature (expressed by 86 per cent), but 26 per cent also expressed dominant aims of an educational nature. One hundred per cent of those interviewed expressed the conviction that adults should continue to learn; but 84 per cent were not attending adult study groups at the time of the interviews. Interest in reading books was expressed by 52 per cent in the declining, but only 30 per cent in the non-declining, communities.

In a study of academic role expectations of female college students in a Midwest state coeducational school and a Southwest private women's college, some patterns of agreement and some areas of ambiguity or uncertainty were found common to both groups (64). Among role items revealing significant differences between academic expectations of private and state college students (with the private college students definitely positive in reaction and the state college students less positive, negative, or uncertain) were those related to whether the library reading assignment should be an integral part of class course work, students should be held accountable for textbook materials regardless of whether or not such was specifically covered in class sessions, instructors should help students in planning study activities, discussion-type rather than straight lecture-method classes should be emphasized, and the instructor should have the responsibility for continually motivating his students to study and learn.

A sample of Boston University undergraduate students was found to be concerned significantly more with academic adjustment, scholastic difficulties, financial, vocational, and emotional problems than with social, health, or administrative problems (86). The two items ranking first and second in frequency on a "Problem Questionnaire" were "improving study habits and skills" and "finding a good place to study." The predominant problems identified by a group of entering freshmen at the University of Southern Mississippi were in the areas of "adjustment to college work" and "curriculum and teaching procedure," with the more specific areas including "easily distracted from work," "hard to study in living quarters," "worrying about examinations," "not spending enough time in study," and "unable to concentrate well." (120).

Several studies were concerned with book and newspaper reading (7; 14; 28; 42; 48; 63; 97). Byerly (14) indicated that a long time downward trend in the number of weekly and semi-weekly newspapers published had not only been halted but reversed. Sim (97), commenting on Byerly's study, showed and demonstrated how the earlier pessimistic picture of decline was based on artificially high and misleading statistics.

Another study (28) was concerned with the extent, purpose, and utilization of book readership of over 3,000 upper-class subjects in fourteen Latin-American countries. Book readership was ranked above other mass media in recent use and was found not to be affected by availability of television. The groups in this study were found to read books more extensively than similar United States groups. Kuroda (63) reported, on the basis of a newspaper reading survey in a Japanese community, some habits and trends which were the opposite of those found in the United States. It was found that 68 per cent of survey respondents read one or more newspapers a day, with almost 50 per cent of the women and 60 per cent of the men not reading a newspaper every day; that the "non-reader" group increased with age; that newspaper readership increased with schooling for females but not for males; that farmers did not read newspapers as much as non-farmers; that newspaper reading increased with interest in world politics or national affairs and with political liberalism (independent of sex, education, and political involvement); and that peace-oriented respondents tended to read newspapers more often than did the war oriented.

Hoopes (48), in analyzing the news published by three Argentine daily papers, found that the three newspapers printed more foreign news than did the average United States newspaper in 1959 and 1961; that greater use was made by the papers of news on sports-entertainment, foreign relations, politics, religion, and human interest (two-thirds of space); that clear preference for western hemisphere news was asserted; and that two gave it fairly balanced comprehensive coverage of domestic news, while one did not. In a study to determine the type of newspaper reading needed in order to classify items correctly, Haskins (42) found that about three-fourths of the foreign affairs items in a newspaper could be properly classified by reading only the headline-and-lead.

INFLUENCE OF READING AND STUDY HABITS AND SKILLS

A number of studies found reported during the past year yielded indications of the influence, or the lack of influence, of reading and study habits and skills (1; 9; 15; 27; 31; 33; 49; 52; 57; 58; 61; 67; 70; 75; 83; 96; 103; 115). As in the past, such investigations included a number of prediction studies (31; 33; 57; 58; 61; 70; 83; 96; 103).

Schroeder (96), in her study of relationships between spelling scores *(Cooperative English Test)* and first-semester grade-point averages of one hundred University of Illinois freshmen, found indications of relationships at the higher levels of ability. Abrams (1) utilized one hundred high school seniors attending a University of Maryland pre-college summer session in his study of ability to recognize structural

2 2

aspects of a written message. Ability to structuralize was found to correlate significantly and positively with *Brown Carlsen-Listening Comprehension Test* scores and *Nelson-Denny Reading Test* scores; but correlations obtained were moderate (0.39 and 0.28, respectively). Total Brown-Carlsen listening scores were not correlated significantly with total Nelson-Denny scores but were with Nelson-Denny reading comprehension scores (when the vocabulary part was omitted). In another study (49), one of effectiveness of different modes of acquiring information (listening or reading) and of responding (writing or speaking), it appeared that listening and writing seemed a most effec- combination. Listening seemed more closely related to speaking and reading more closely to writing.

Several other studies involved dropout or dismissal students (9; 52; 67; 103). Boxhill (9) concluded that dismissal students involved in his study would profit from counseling with regard to tutoring possibilities and improvement of study and reading skills. Jellison (52), in a study of Fort Hays College dropouts with good, and those with poor, academic potential, found among the factors mentioned significantly more often by poor potential than by good potential dropouts as ones which influenced them to withdraw were "did not learn how to study in high school," and "poor reading ability." Lembesis (67), however, in a study of Northern Illinois University dropouts, found ability in mechanics of expression to be one of the factors relating significantly to college persistence; but reading test scores (vocabulary and comprehension) were not significantly related. Stone (103) found English test scores (*American College Test*) to have the lowest relative weights of several test scores in a discriminate analysis and predictions study of a group of freshmen-year agricultural student dropouts at Kansas State University.

Several other studies also gave indications of a negative, or of no, relationship of aspects of reading and study skills to academic achievement or college success. Academic achievement appeared independent of reading skills and skill changes in Edgar's study (27). Pabst (83) in a study involving approximately 1,900 Indiana University freshmen, found English test scores (*Iowa Tests of Educational Development*), but not *Nelson-Denny Reading Test* scores, to be among the best predictors of academic achievement in college.

A number of other studies, however, yielded indications of more positive relationships with college success or academic achievement. Campbell (15) found significant relationships between college achievement of Louisiana State University freshmen and all factors studied (but correlations between grade-point average and scores on the *Cooperative English Test* were relatively low, .253). Friedman (31) found the best combination of predictors of success in junior college to include Cooperative English "speed reading test" scores as one of three factors. Gallant (33), in a study involving a sample of 663 students from Ashland College and Kent State University, found achievement of students in all high school English courses to be correlated higher (.544) with college grade-point average than was total achievement in science, mathematics, or social studies and that high school and college English grades correlated more highly than did social studies, science, or mathematics grades. Correlations reported by Juola (57) between reading test scores of a group of Michigan State University students and their term grades over a seven-quarter span tended to be higher than those of term grades with Verbal, Information, and Numerical subscores of the *College Qualification Test* and very similar to those with *College Qualification Test* total scores.

In a study in which 159 Citrus College freshmen with upper quartile SCAT scores were placed in three groups according to disparity between high school and junior college grade-point averages, the *Brown-Holtzman Survey of Study Habits and Attitudes* was found to be a significant predictor for all groups except total males and the lowest group (58). The reading test scores of prospective college freshmen in a University of Maryland reading program were found to be better predictors of success in the two college courses participants were taking than were instructor's ratings of improvement (61). Study habits of 56 conditional admissions at the University of Southern California were significantly lower than those of regular freshmen (70). Study habits and verbal ability, in that order, were found to be the best predictors of college success for conditional students.

In a report on some changes which have taken place since the April, 1963, McGrath report, *The Predominantly Negro Colleges and Universities in Transition*, Meeth (75) referred to "undergirding" of weaker institutions by means of projects "for remedial instruction" in three junior colleges in South Carolina and to undergirding "the work of Negro colleges focusing on remedial curriculum development." He pointed out also that additional emphasis was placed in the McGrath report on, among other matters, "intensifying remedial efforts." Webb (115) found a group of Indiana University student teachers who received and read specially prepared mimeographed reading materials concerning discipline and lesson planning rated significantly higher than did a group who received the same content through lecture-discussion group seminars.

FACTORS INFLUENCING READING AND STUDY HABITS AND SKILLS

A considerable number of reported studies had relevance to factors influencing reading and study habits and skills (3; 4; 5; 6; 7; 10; 11; 12; 16; 18; 19; 21; 23; 25; 27; 29; 34; 36; 38; 39; 41; 50; 51; 54; 55; 59; 60; 61; 62; 68; 69; 72; 76; 79; 80; 81; 82; 85; 88; 89; 90; 95; 98; 100; 102; 107; 109; 110; 111; 113; 114; 116; 117). A group of reports contained a general relationship to message or article traits or qualities

In one study (3; 4), students in second semester reporting courses, at three universities, were exposed to an information source which was either high or low in "credibility" and then were asked to report a message which was either high or low in "credibility." Definite effects of message credibility on perceived source credibility and on credibility ratings of expertness, fairness, and trustworthiness were found. Subjects used more attributions (references to background of source information) when both message and source credibility were low than when both were high; but fewest references were made when a high credibility source delivered a low credibility message. Another group of investigators (116) found significantly greater opinion formation occuring when a college group read a persuasive article which they were led to believe was advocated by "all the experts" than when told it was advocated by less than half of the experts.

In another study (36) it was found that decreasing message quality, by increasing amounts of spelling and grammatical errors, led to lower ratings of logic, clarity, and writing style of the message but did not affect the ratings of information quality; led to perception of the source as less trustworthy and competent; and resulted in differences in information gained but not in persuasion or attitude toward the topic. Whittaker (117) asked 117 students enrolled in a general psychology course to express opinions of five issues before reading about the issues and after reading each of two booklets of information concerning issues, with the second booklet containing positions opposite those in the first. High-persuasible subjects (making frequent opinion changes from initial positions in the direction of the communication) and low-persuasible subjects were found to differ significantly in both interpersonal and mass communication situations, with a consistency and maintenance of these differences. Females were found to be significantly more persuasive than males. The hypothesis that highly persuasible males would show more feminine characteristics was not substantiated. McAllister (72), studying attitudes of University of North Carolina undergraduate newspaper readers, found that the news story by-line itself had little effect upon the credibility of newspaper articles, nor did indicated "expertness" or sex of writers. Stempel (100) found that increasing the coverage of an Ohio University campus newspaper by using wire copy with national and international news items was more effective in reaching those who already had other exposure than those who had no media exposure.

The low non-significant correlation, .15, obtained by Casler and Marshall (16) did not corroborate findings of an earlier study that college students who scored high on a test of authority conflict tended to receive relatively low scores on a spelling test. Ludwig and Polak (69) found that dark adaptation in tachistoscopic presentation of "threat" and "non-threat" words did not significantly effect stimulus thresholds but that response to "threat" words varied significantly with varying degrees of dark adaptation. In a study of differential recall of taboo and neutral words, Grosser and Walsch (38) found male and female groups equal in overall verbal recall ability; but females were consistently higher on nine of ten neutral words while males were consistently higher on nine of ten "sexually taboo" words. The investigators concluded that a suppression-like phenomenon operates with recall. Bornholdt (7), in a study involving University of Iowa students and faculty, found only news values of violence and sex had predictable influence on type of news items readers considered important and interesting. News values of immediate or delayed reader reward and broad and social, or narrow and individual, effects on the audience did not show or have predictable influence.

Visual and related factors were involved, in a general way, in another group of studies. The low correlations of initial rate and comprehension scores of 144 college reading program students with rate of visual shift, tested by means of the Necker Cube Test on the Keystone Telebinocular, led Bilsky (6) to conclude that rate of visual shift is not an important determining factor in reading rate and rate of comprehension. Brydon (12) found that variations in exposure time had little effect on relative accuracy or on order of reporting when subjects viewed horizontal rows of eight letters. He also found that increasing spacing between letters improved accuracy in central positions and decreased the tendency from left to right reporting of letters. Subjects in Newman's study (82) were asked to read passages presented as meaningful strings of one to ten letters, with one letter being displaced at a time to the left, the span of letters constant for a given presentation, and new letters added at a constant rate. Definite differences were found in the amount correctly reported when context was present (string of eight letters) and when one letter was presented alone, indicating a drastic reduction in speed at which material can be read when context is lacking. Mueller (81) found that anxiety did not produce any significant differences, but difficulty level did, on tachistoscopic recognition of word sets but not on number sets. Morton (79) found, in a study in which college students read aloud passages of discontinuous context, that reading speed, eye-voice span, and numbers of fixations and regressions varied with degree of contextual restraint. In a second study of effects of context, Morton (80) found recall easier in context than in no-context conditions and that expectancy, previous stimuli responses, and inadequate perception were among relevant factors. Groups of college students in another study (34) found the various types of tachistoscopically presented trigrams which were recognized most frequently were, in order, meaningful pronounceable and control. Results obtained with college students in still another study (111) showed significant differences favoring simultaneous over sequential presentation of three-letter verb forms or names of forms, with the presentation mode significantly different under all conditions.

Harcum (41) presented 120 meaningful eight-letter English words to the right or left sides of fixation, with orientation and sequence varied together and separately. He found, in general, that perception of subjects was less accurate when directional characteristics of words varied from normal direction for reading words. Harcum offered an interpretation of hemifield differences, as an alternative to the notion of simple hemispheric dominance. Individual vision screening tests, using the Ortho-Rater, were given to 180 Stetson University freshmen who were selected as the lowest third of the class in reading skills and who were in a reading improvement course (27). Among the findings were that changes in levels of reading skills were negatively related to initial levels; some of the relationships between vision factors and changes in reading skills were significantly different between the total group and subjects with uncorrected visual problems; subjects with uncorrected vision problems had significantly higher relationships between right eye acuity and initial reading skills, reading skills changes, measures of academic achievement, and measures of mental ability; and changes in levels of skills appeared to be affected by reading skills attained prior to reading improvement.

Another group of studies involved suggestions concerning the role of personality traits and other personal traits (6; 12; 21; 23; 27; 41; 55; 82; 88; 107; 110). Baker and Madell (5) found no significant differences in reading comprehension test scores (*Cooperative English Test*) when a group of twelve male achievers (ranking for academic performance no more than three points below ranking for aptitude) and twelve male underachievers (performance ranking at least 16 points below aptitude ranking) were tested under conditions of quiet. Test performance of both groups was significantly affected by a distraction condition (hearing taped humorous conversation through earphones while taking a test), with the underachievers suffering significantly greater loss or impairment. In Duerfeldt's study (25), the heart rate and skin conductance of two groups of male college students were measured before, during, and after oral reading of a passage. Both delayed and immediate feedback conditions were found to be stressful, but the delayed auditory feedback proved to be significantly more so. Results obtained by Carney (18), in a study of 147 Western Reserve University freshmen who scored below the 30th percentile on reading (*Cooperative English Test*) and who were in a reading improvement course, did not substantiate the basic hypothesis that the primary reason for poor reading was an inflexible personality. Intelligence scores (Otis Gamma) were found to be of limited value in predicting reading improvement. The only significant obtained correlation between reading improvement and personality traits was a low positive one with "thoughtfulness" (for which a high negative correlation had been anticipated). In another study (39), involving 102 males in an introductory psychology course and measures of personality, grade-point average, and vocabulary and verbal comprehension, results failed to show any definite relationship with regard to personality correlates.

Kicklighter (59), comparing various scores of college underachievers and overachievers (disparity of 20 or more percentile points between expected and actual achievement criteria), found underachievers scoring higher in all of the six areas of the *Heston Personal Adjustment Inventory* except one, "analytical thinking." Knafle (61) found that personality factors *(California Psychological Inventory)* played a larger role in determining instructor's ratings of progress of 100 prospective male freshmen, enrolled in a six-weeks University of Maryland pre-college program, than did actual *Nelson-Denny Reading Test* gains made. Reactions of instructors to different personality characteristics appeared to vary according to whether a student's initial reading test scores were high or low. Better psychological adjustment for students who showed high reading improvement than for those who showed poor improvement was not indicated. Schnever (95), comparing high and low improvers in a college reading course, found significant differences in verbal scores *(Scholastic Aptitude Test)*, favoring high achievers, but not significant differences in mathematics aptitude scores.

Draper (23) found no significant differences in reading achievement gains between students with realistic self-concepts of learning style and those with unrealistic self-concepts. Darby (27), comparing "referred" and "self-initiated" groups of participants in a University of Maryland reading program over three semesters, found no differences between the two groups on reading achievement (measured by *SRA Placement Test* and *Nelson-Denny Reading Test*). However, the self-initiated group was found to score significantly higher on the *Brown-Holtzman Survey of Study Habits and Attitudes*.

Questionnaire responses obtained by Tresselt (107), in his study of 35 students in a how-to-study course, gave indications that those who believed they would be helped by the course were actually helped to a greater extent than were those who were doubtful and that the possibility of being helped by the course was recognized earlier by the more intelligent than by the less intelligent. In another questionnaire study, involving students in remedial English classes in five California junior colleges, Tucker (110) found that among teacher behaviors considered by students to contribute to successful achievement were asking and answering questions, giving specific and detailed examples, encouraging class discussion, and using audio-visual materials effectively. Negative teacher behaviors given were giving few examples of concepts, not permitting or answering questions, and lecturing constantly. Student behaviors considered to be contributing factors were class participation, self-editing of papers, reading widely, analyzing each other's work, and doing many exercises. Failure to participate in class discussion and related activities was the only student behavior indicated as being critically interfering with successful course achievement. In a study with 186 college seniors and graduate students at the University of North Dakota, Johansen (55) obtained results which indicated that childhood identification with feminine, rather than masculine, figures may be related to language interests and ability (rather than to non-language interests and abilities) for men but not for women.

The reading rate of a story read orally by a group of college students was significantly reduced and immediate recall was severely impaired by delayed auditory feedback (60). Spear and Green (99) concluded, after their assessment of 22 psychiatric patients who had complained of inability to concentrate, that the reported lack of ability related to failure of motivation (perhaps apathy) and that the external stimulii of testing situations appeared to aid concentration.

Various and miscellaneous area or factors were involved in a further group of studies (10; 11; 19; 29; 51; 54; 62; 68; 85; 88; 89; 90; 109; 113; 114). Brilhart (10), using accuracy of listeners drawings of geometric designs described by a speaker as measures of speaking effectiveness, failed to find a positive correlation between listening and speaking; nor did she find a significant correlation between speaking scores and *Brown-Carlsen Listening Comprehension Test* scores. A negative correlation between listening and speaking scores was found for males, at a middle level. In a study of effects of community characteristics on library circulation (85), female education was found to be the strongest single predictor, with the strongest combination for prediction of library circulation being female education, population, and income. In a study of newspaper advertising readership, two of the four advertising attributes which were found to account for approximately three-fifths of readership variability were ratio of pictures to copy space and number of items in the advertisement. The other two attributes, size and type of product advertised, appeared to have little influence. Television presentation was found significantly superior to audio-presentation for arousing interest of groups of Ohio State University students who were presented with three short stories in one of three ways. A face-to-face method of presentation was found to be superior to the audio-presentation in terms of asthetic response; no significant differences in comprehension were found between any two presentation methods. Feldman (29) found that when 144 college sophomores were presented with either programmed or text psychology materials, at one of three levels of difficulty, no significant differences in test score gains resulted between format groups; but higher verbal ability groups tended to gain more from studying difficult material.

In a study in which test passages were administered at varying rates through visual, aural, and both visual and auditory modalities, best performance on test items over printed versions of passages were generally produced by a combination (audio-visual) presentation. The peak of efficiency scores was attained at around 300 words per minute, with the audio-visual mode again being superior to the other two modes. In a study reported by Kolers (62), bi-lingual subjects read passages written in either French or English or in varying patterns of combination of French and English and then were tested for comprehension of materials presented in several linguistic forms and for other factors. Comprehension did not appear to be affected by the linguistic form of a passage; but other tasks, such as oral reading of various linguistic forms, reading of passages adapted to various linguistic forms, and making precis of passages in various linguistic forms, showed definite negative effects of having the mixed text presentations. Price (90) reported greatest progress in reading programs at his college was made by initially best readers, that initially lowest readers profited the least, and that transfer of reading skills to other areas was accomplished readily by the better readers.

Weaver and Garrison (114) reported a series of experiments in which the effect of "chunking," or "coding," of prepositional phrases (reversing sequences of prepositional phrases) was studied. Significant differences were found between speeds of reading lists when a preposition was first in a phrase and when a preposition was last, in reading speeds for difficulty levels, and in reading speeds among subjects. The investigators concluded that increased latency involved when a preposition was last was an effect of sequence alone and was not related to difficulty of material. Further experimentation indicated that whether the beginning or ending word of a phrase began with a vowel or a consonant element was not a significant factor. In a series of studies on the effect of a secondary reinforcer (appearance of a green light) on reading rate performance, when the reinforcer was dependent upon various intervals between response rates, Wark and Warren (113) had one to four subjects participating in each of the studies for one-hour experimental periods. They reported results which indicated that use of a secondary reinforcer with the operant technique involved in their studies could produce significant rate gains.

Millard (76) found frequent readers of the *Presbyterian Survey Magazine* attended church regularly and frequently held a church office. Factors in decrease of readership were higher education, higher income, living in large rather than small cities, and sex (men reading less). Pressaw (89) found, in a study involving members of twelve United Presbyterian Churches in the Pittsburgh area, that read hymns were comprehended significantly better than were sung hymns and that hymn comprehension was related to "cultural privilege" (superior education, membership in large churches, and higher verbal ability) and to amount of religious knowledge gained rather than to extent of participation in religious activities. Difficulty of comprehension appeared to be influenced by biblical terms and allusions, high level vocabulary, archaic language, and complex poetic devices.

Lienert and Huber (68), in a study of differential effects of coffee on speed and power tests, found that only performance on speed tests was favored by coffee. Performance on less speeded or non-speeded power tests either was not affected or was reduced. Dabbs and Janis (19) found that neither receiving refreshments while reading nor receiving refreshments before receiving persuasive communications had significant effects on amount of opinion change among subjects. In another study (62) it was found that groups made more opinion changes relative to persuasive communications while eating than when not eating.

TESTING, READABILITY, AND MISCELLANEOUS AREAS

A number of reports had relevance for the area of testing (9; 23; 24; 37; 45; 50; 68; 84; 106). Boxhill (9) constructed an RD scale which he felt gave some indication of the ability of probation students to improve when faced with dismissal prospects. Draper (23), in his study with Indiana University freshmen in a reading improvement course, was concerned, in part, with the usefulness of an instrument for describing learning style. He reported that the scale did not differentiate students according to reading achievement or academic adjustment. Greene (37) reported that a modified cloze procedure (deletions made on rational rather than on mechanical bases) used with groups of upper classmen and graduate students produced a better reading test in terms of reliability and item performance, but with a greater increase in testing time and a loss of objectivity in item construction.

Droege (24) studied the long-range effects of practice on the *General Aptitude Test Battery* by retesting individuals, who were between 25 and 34 years of age at the time of initial testing, after intervals of one, two, and three years. He found significant increases in scores upon retesting after each of the three interval periods but no indication of deterioration in reliability of measurement. Practice effect was found to be a function of length of interval between testing for certain aptitudes and initial level a factor in size of increase for certain aptitudes, with no deterioration in size of relationship between initial testing and retesting for any aptitude. Groups given coaching and groups not given coaching relative to performance on the *College Board English Composition Test* were compared by Jacobs (50). He found coaching may increase student scores on the achievement test without increasing actual skills in the area tested. When subjects were retested ten months later, the coaching increment was found to have disappeared. Considerable variation in coaching effects among schools was also found.

291

Hitchman (45), conducting a study of validity and reliability of tests of spoken English (including prose reading and poetry speaking) in England, concluded that the types of speed tests analyzed had reasonably high validity and reliability, that the test was as reliable and valid as essay-type written examinations, and that reliability raters' judgments were not affected by fatigue. Pandey (84) gave a Hindi adaptation of the *Brown-Holtzman Survey of Study Habits and Attitudes* to 246 boys, ranging in ages from 13 to 20 years, in three schools in India. The analysis of item discrimination power and internal consistency indicated that only 5 of 75 items could not be used in the final form of the adaptation.

Results obtained with a communication questionnaire distributed to civilian workers at the U.S. Army Transportation Center, Fort Eustis, by Thornton indicated that articles least read were those dealing with classification, position, and pay management (106). Thornton concluded that communications need to contain simple language, nontechnical terms, repetition, illustrations, and attention-getters; that verbiage needs to be condensed to the maximum extent possible (one page or less); and that communications need to be told in brief, concise, general terminology. Secondary and college level materials were used in Lee and Belden's study (65) of the validity of the Dale-Chall Readability Formula when used with materials different from those used in the original validation. Sample passages taken from a general psychology textbook were arranged in order of readability; then a test divided into three parts was administered to 396 college students who were classified according to levels of *Nelson-Denny Reading Test* scores. A given passage was considered to be within the comprehension of a given grade level of comprehension if 75 per cent of the given grade-level reading group were able to answer three or four of the four passage questions correctly. The correlation coefficient obtained between the readability index of each passage and reading grade level of each group (.7558) was not significantly different from the coefficient obtained in the original Dale-Chall cross-validation study.

Mitzel (77) presented a list of 5,000 words as a "functional word list for adults" which purportedly reflected the "present and immediate future reading needs of the average illiterate American adult." According to Mitzel, word sources were selected from "personal observation" and interviews with newspaper and magazine stand dealers. Plog (87) developed a literacy index for predicting educational level of writers of public mail, on the basis of 162 letters sent to the *Boston Herald* editor. Questionnaire data were obtained from letter writers with regard to their newspaper reading habits, socio-economic status, and educational background. The best predictors for educational level were found to be, in order, "graphic maturity," "quality of paper," "grammar and word usage," and "neatness."

In a book selection survey carried on by the *Library Journal* staff (78), approximately 50 librarians each named one adult book published in 1965 "which should be on the shelves of every public library," one "which should *not* be on the shelves of any public library," and one "which has considerable merit but which, for some reason . . . neglected or purchased less widely by public libraries than it deserves to be." For the "in" books, two titles dominated, Theodore Sorenson's *Kennedy* (9 votes) and Samuel Eliot Morison's *Oxford History of the American People* (8 votes). The next two nearest contenders were Theodore H. White's *The Making of the President*, (5 votes) and *World Almanac* (6 votes). With regard to the "out" books, few specific answers were obtained. Of thirty specific title responses, Jean Harlow's *Today is Tonight* and Oscar Levant's *Memoirs of an Amnesiac* each received three votes; two votes each were received by Lenny Bruce's *How to Talk Dirty and Influence People*, Dan Greenburg's *How to be a Jewish Mother*, and Terry Sothern and Mason Hoffenberg's *Candy*. The resulting three lists obtained were combined into one list and this list was sent to 200 librarians throughout the country, who were asked to indicate which of the 95 titles they had purchased or had on order. Of 29 "in" titles chosen by the original selection panel, three titles were found in all 124 libraries which responded, 10 in 90 per cent or more, 16 in 75 per cent or more. Considerably less agreement was found with regard to the "out" books chosen by the selection panel. Three of those books were found in every library, but three titles in less than 10 per cent of the libraries, and half of the listed books were found in less than 25 per cent of the libraries. Of the "neglected" books a majority of the books picked by the selection panel was found to be "neglected by the libraries."

A questionnaire listing 94 foreign news periodicals was sent to 335 U.S. libraries with a total budget of $25,000 or more by Wall (112). Two hundred and fifty replies were received. The results yielded "several interesting, if not appalling, facts." The great majority of 94 titles were received by only one or two, or no libraries. Of the 250 libraries responding, half did not receive any of the titles, 38 received 1, 2, or 3 of the titles; 5, 7, 13, and 16 titles were received by one library each; and only 4 of the 250 libraries received one-fourth or more of the titles (22 titles by each of two libraries and 33 and 52 titles by one library each).

BIBLIOGRAPHY

1. Abrams, Arnold G., "The Relation of Listening and Reading Comprehension to Skill in Message Structuralization." *Journal of Communication*, June, 1966, 16:116-125.
2. Allman, Reva White, "The Knowledge of English Usage of 318 Graduate Students at College 'A'," *Journal of Negro Education*, Spring, 1966, 35:189-194.
3. Atwood, L. Edwin, "Effects of Source and Message Credibility on Writing Style," *Journalism Quarterly*, Autumn, 1966, 43:464-468.

4. Atwood, L. Erwin, "The Effects of Incongruity Between Source and Message Credibility," *Journalism Quarterly*, Spring, 1966, 43:90-94.
5. Baker, Robert W., and Madell, Thomas O., "A Continued Investigation of Susceptibility to Distraction in Academically Underachieving and Achieving Male College Students," *Journal of Educational Research*, October, 1965, 56:254-263.
6. Bilsky, Maxwell G., "A Study of the Relationship of Visual Shift to Rate of Reading," *Journal of Educational Research*, May-June, 1966, 59:429.
7. Bornholdt, John N., Jr., "Should the Student Press be More Serious?" *Journalism Quarterly*, Autumn, 1966, 43:560-561.
8. Bowman, Willard Orlus, "Academic Achievement in the University of Colorado by the Participants in the Pre-College Program," *Dissertation Abstracts*, April, 1966, 26:5858-5859.
9. Boxhill, Carlton J., "A Scale to Aid in the Retention or Dismissal Decision," *Personnel and Guidance Journal*, September, 1966, 45:53-55.
10. Brilhart, Barbara Lieb, "The Relation Between Some Aspects of Communicative Speaking and Communicative Listening," *Journal of Communication*, March, 1965, 15:35-46.
11. Brooks, Keith, and Wulftange, I. Marie, Sr., "Listener Response to Oral Interpretation," *Speech Monographs*, March, 1964, 31:1-6.
12. Bryden, M. R., "Accuracy and Order of Report in Tachistoscopic Recognition," *Canadian Journal of Psychology*, September, 1966, 20:262-272.
13. Buffone, Nicholas John, "A Survey of College and University Reading Programs and an Analysis of the Reading Program at the University of Oklahoma," *Dissertation Abstracts*, January, 1966, 26:3692-3693.
14. Byerly, Kenneth R., "Upward Turn in Number of Weekly Newspapers in United States Reverses 50-Year Trend," *Grassroots Editor*, October, 1965, 6:10-12. (Cited in *Journalism Quarterly*, Spring, 1966, 43:121).
15. Campbell, Joe Watkins, "Factors Related to Scholastic Achievement (Louisiana State University's 1963-1964 Freshman Class)," *Dissertation Abstracts*, February, 1966, 26:4360-4361
16. Casler, Laurence, and Marshall, Sally M., "Orthography and Authority: A Replication and Extension," *Psychological Reports*, August, 1965, 17:167-172.
17. Canute, Russell J., "An Exploratory Evaluation of Certain Aspects of the Listening Programs as a Part of the Study Skills Course at the University of Wyoming," *Journal of Educational Research*, October, 1965, 59:51-54.
18. Carney, Melvin Earl, "The Relationship Between Certain Personality Traits and Improvement in College Reading," *Dissertation Abstracts*, July, 1966, 27:108A
19. Dabbs, James M., Jr. and Janis, Irving L., "Why Does Eating While Reading Facilitate Opinion Change?—An Experimental Inquiry," *Journal of Experimental Social Psychology*, May, 1965, 2:133-144.
20. Dalton, Patrick; Gliessman, David; Guthrie, Harriet; and Rees, Gilbert, "The Effect of Reading Improvement on Academic Achievement," *Journal of Reading*, March, 1966, 9:242-252.
21. Darby, Charles A., Jr., "Referred and Self-Initiated Students in Reading-Study Program," *Journal of Reading*, January, 1966, 9:186-192.
22. Dobbs, Ralph C., "Self-Perceived Educational Needs of Adults," *Adult Education*, Winter, 1966, 16:92-100.
23. Draper, Merle Reed, "The Relationship of Learning Style to Reading Achievement and Academic Adjustment," *Dissertation Abstracts*, August, 1966, 27:326A.
24. Droege, Robert C., "Effects of Practice on Aptitude Scores," *Journal of Applied Psychology*, August, 1966, 50:206-310.
25. Duerfeldt, Pryse Henry, "Autonomic Responsivity and Verbal Performance in a Delayed Auditory Feedback Situation," *Dissertation Abstracts*, November, 1965, 26:2878.
26. Dugan, Robert D., "The Industrial Psychologist: Selection and Equal Employment Opportunity (A Symposium). I. Current Problems in Test Performance of Job Applicants: II," *Personnel Psychology*, Spring, 1966, 19:18-24.
27. Edgar, David Eugene, "Vision as it Relates to Reading at the College Level," *Dissertation Abstracts*, April, 1966, 26:5862-5863.

28. Ellingsworth, Huber W., and Deutschmann, Paul J., "Book Readership by a Subelite Latin American Group," *Journal of Communication*, December, 1964, 14:238-244.
29. Feldman, Margaret E., "Learning by Programmed and Text Format at Three Levels of Difficulty," *Journal of Educational Psychology*, June, 1965, 56:133-139.
30. Fleischer, Ernest, "Reading Surveys and Their Implication in Freshman English Programs," *Journal of the Reading Specialist*, May, 1966, 5:160-164.
31. Friedman, Stuart M., "Predicting Students' Success in a Comprehensive Junior College," *Dissertation Abstracts*, June, 1966, 26:7112.
32. Fry, Edward, "Reading Improvement Courses in United States and Africa," *Teacher Education*, February, 1965, 5:204-208.
33. Gallant, Thomas Francis, "Academic Achievement of College Freshmen and its Relationship to Selected Aspects of the Student's Background," *Dissertation Abstracts*, May, 1966, 26:6468-6469.
34. Gibson, Eleanor J.; Bishop, Carol H.; Schiff, William; and Smith, Jesse, "Comparison of Meaningfulness and Pronunciability as Grouping Principles in the Perception and Retention of Verbal Material," *Journal of Experimental Psychology*, February, 1964, 67:173-182.
35. Glenn, Mrs. M. L., "The Improvement of Reading at the Community College Level," *Journal of Developmental Reading*, Summer, 1964, 7:318-321.
36. Greenberg, Bradley S., and Razinsky, Edward L., "Some Effects of Variations in Message Quality," *Journalism Quarterly*, Autumn, 1966, 43:486-492.
37. Greene, Frank P., "Modification of the Cloze Procedure and Changes in Reading Test Performance," *Journal of Educational Measurement*, December, 1965, 2:213-217.
38. Grosser, George S., and Walsh, Anthony A., "Sex Differences in Differential Recall of Taboo and Neutral Words," *Journal of Psychology*, July, 1966, 63:219-227.
39. Hakel, Milton D., "Prediction of College Achievement from the Edwards Personal Preference Schedule Using Intellectual Ability as a Moderator," *Journal of Applied Psychology*, August, 1966, 50:336-340.
40. Handy, Russell Franklin, "An Analysis of Academic Improvement in the Basic Studies Program in Miami-Dade Junior College," *Dissertation Abstracts*, April, 1966, 26:5915.
41. Harcum, E. Rae, "Visual Hemisfield Differences as Conflicts in Direction of Reading," *Journal of Experimental Psychology*, September, 1966, 72:479-480.
42. Haskins, Jack B., "Headline-and-Lead Scanning vs. Whole-Item Reading in Newspaper Content Analysis," *Journalism Quarterly*, Summer, 1966, 43:333-335.
43. Hastings, William H., "Developmental Reading for United Automobile Workers," *Journal of Reading*, March, 1966, 9-253-254.
44. Hipps, Gary Melvin, Sr., "The Status of the Freshman English Programs in the Four Year Colleges in North Carolina," *Dissertation Abstracts*, February, 1966, 26:4334.
45. Hitchman, P. J., "The Validity and Reliability of Tests of Spoken English," *British Journal of Educational Psychology*, February, 1966, 36:15-23.
46. Hollingsworth, Paul M., "Effectiveness of a Course in Listening Improvement for Adults," *Journal of Communication*, September, 1966, 16:189-191.
47. Hollingsworth, Paul M., "Reading Improvement for Women and Men in Industry," *Journal of Reading*, March, 1966, 9:254-262.
48. Hoopes, Paul R., "Content Analysis of News in Three Argentine Dailies," *Journalism Quarterly*, Autumn, 1966, 43:534-537.
49. Horowitz, Milton W., and Berkowitz, Alan, "Listening and Reading, Speaking and Writing: An Experimental Investigation of Differential Acquisition and Reproduction of Memory," *American Psychologist*, July, 1965, 20:552.
50. Jacobs, Paul I., "Effect of Coaching on the College Board English Composition Test," *Educational and Psychological Measurement*, Spring, 1966, 26:55-67.
51. Janis, Irving L.; Kaye, Donald; and Kirschner, Paul, "Facilitating Effects of 'Eating-While-Reading' on Responsiveness to Persuasive Communication," *Journal of Personality and Sociel Psychology*, February, 1965, 1:181-186.
52. Jellison, Billy Dean, "Certain Differences in Two Groups of Dropouts at Fort Hays Kansas State College with Recommendations for Reducing Attrition among Students with Good Academic Potential," *Dissertation Abstracts*, April, 1966, 26:5867-5868.

53. Jesseph, Joe R., "Pre-College Orientation Conferences and Subsequent Behavior of Freshmen," *Journal of College Student Personnel*, September, 1966, 7:289-294.

54. Jester, Robert E., and Travers, Robert M. W., "Comprehension of Connected Meaningful Discourse as a Function of Rate and Mode of Presentation," *Journal of Educational Research*, March, 1966, 59:297-302.

55. Johansen, Ansgar Nicholas, "An Investigation of the Relationship of Childhood Identification to Language Interest and Ability," *Dissertation Abstracts*, April, 1966, 26:5869.

56. Jones, Dan H., "Training Industrial Executives in Reading: A Methodology Study," *Journal of Applied Psychology*, June, 1965, 49:202-204.

57. Juola, Arvo E., "Prediction of Successive Terms Performance in College from Tests and Grades," *American Educational Research Journal*, May, 1966, 3:191-197.

58. Kearney, Dorothy Lucille, "Selected Non-Intellectual Factors as Predictors of Academic Success in Junior College Intellectually Capable Students," *Dissertation Abstracts*, August, 1966, 27:395A-396A.

59. Kicklighter, Richard H., "Personality Characteristics of Academically Underachieving and Overachieving Students," *Journal of Educational Research*, March, 1966, 59:333-336.

60. King, David J., and Dodge, Ann-Michelle, "The Influence of Oral Recall on Immediate and Delayed Auditory Feedback," *Journal of Psychology*, January, 1965, 59:141-147.

61. Knafle, June D., "Personality Characteristics, Social Adjustment, and Reading Effectiveness in Low-Achieving, Prospective College Freshmen in a Reading Program," *Journal of Educational Research*, December, 1965, 59-149-153.

62. Kolers, Paul A., "Reading and Talking Bilingually," *American Journal of Psychology*, September, 1966, 79:357-377.

63. Kuroda, Yasumasa, "Newspaper Reading and Political Behavior in a Japanese Community," *Journal of Communication*, September, 1966, 15:171-181.

64. Lacognata, A. A., "A Comparative Analysis of Private and State College Student Academic Expectations," *Journal of Educational Research*, September, 1966, 60:32-34.

65. Lee, Wayne D., and Belden, Bernard R., "A Cross-Validation Readability Study of General Psychology Textbook Material and the Dale-Chall Readability Formula," *Journal of Educational Research*, April, 1966, 59:369-373.

66. Lell, Gordon, "English Proficiency at U.S. Naval Officer Candidate School," *College English*, November, 1965, 27:140-144.

67. Lembesis, Anne Constance, "A Study of Students who Withdrew from College During Their Second, Third or Fourth Years," *Dissertation Abstracts*, February, 1966, 26:4339.

68. Lienert, G. A., and Huber, H. P., "Differential Effects of Coffee on Speed and Power Tests," *Journal of Psychology*, July, 1966, 63:269-274.

69. Ludwig, Arnold, and Polak, Paul R., "Some Difficulties with Tachistoscopic Research," *Journal of General Psychology*, January, 1965, 79:101-109.

70. Malcolm, Richard Ward, "An Analysis of Selected Conditional Admissions at the University of Southern California," *Dissertation Abstracts*, July, 1966, 27:115A.

71. Maxwell, Martha J., and Horn, Arthur, "A Comparison of Two Methods for Increasing Reading Speed with the Reading Accelerator," *Journal of the Reading Specialist*, March, 1966, 5:113-116.

72. McAllister, William H., III, "The Effect of Bylines on News Story Credibility," *Journalism Quarterly*, Summer, 1966, 43:331-333.

73. McGuigan, F. J.; Keller, Barbara; and Stanton, Eleanor, "Covert Language Responses during Silent Reading," *Journal of Educational Psychology*, December, 1964, 55:339-343.

74. McKillop, Anne, and Yolove, E. A., "The Reading of University Students," *Teacher Education*, November, 1962, 3:93-107.

75. Meeth, L. Richard, "The Report on Predominantly Negro Colleges One Year Later," *Journal of Negro Education*, 35:204-209.

76. Millard, William J., Jr., "Reader Characteristics and Content Preferences for a Denominational Magazine," *Journalism Quarterly*, Summer, 1964, 41:433-436.

77. Mitzel, M. Adele, "The Functional Reading Word List for Adults," *Adult Education*, Winter, 1966, 16:67-69.

78. Moon, Eric (Ed.), "In, Out, or Neglected?" *Library Journal*, January 1, February 1, 1966, 91:57-64, 633-637.

79. Morton, John, "The Effects of Context upon Speed of Reading, Eye Movements and Eye-Voice Span," *Quarterly Journal of Experimental Psychology*, November, 1964, 16:340-354.

80. Morton, John, "The Effects of Context on the Visual Duration Threshold for Words," *British Journal of Psychology*, May, 1965, 55:165-180.

81. Mueller, Arthur C., "An Experimental Investigation of the Relation Between Anxiety and Perceptual Accuracy on Increasingly Difficult Materials Projected with the Tachistoscope," *Journal of the Reading Specialist*, October, 1965, 5:12-17.

82. Newman, Edwin B., "Speed of Reading When the Span of Letters is Restricted," *American Journal of Psychology*, June, 1966, 79:272-278.

83. Pabst, Robert Leroy, "A Validation Study of the Relationship of Size of High School and Certain Intellective Factors to Academic Achievement in College," *Dissertation Abstracts*, August, 1966, 27:331A-332A.

84. Pandey, Jagdish, "Hindi Adaptation of Brown-Holtzman's Survey of Study Habits and Attitudes (SSHA)," *Indian Psychological Review*, July, 1965, 2:53-58.

85. Parker, Edwin B., and Paisley, William J., "Predicting Library Circulation from Community Characteristics," *Public Opinion Quarterly*, Spring, 1965, 29:39-53.

86. Penney, James F., and Buckles, Delora E., "Student Needs and Services on an Urban Campus," *Journal of College Student Personnel*, May, 1966, 7:180-185.

87. Plog, Stanley C., "A Literacy Index for the Mailbag," *Journal of Applied Psychology*, February, 1966, 50:86-91.

88. Poulton, E. C., "Letter Differentiation and Rate of Comprehension in Reading," *Journal of Applied Psychology*, October, 1965, 49:358-362.

89. Pressaw, Jack Renard, "Concomitants of Hymn Comprehension: An Exploratory Study," *Dissertation Abstracts*, February, 1966, 26:4472.

90. Price, Uberto, "Developmental Reading for All College Freshmen," *Journal of Reading*, April, 1966, 9:333-334.

91. Rankin, Earl F., Jr.; Greenmun, Kenny; and Tracy, Robert J., "Factors Related to Student Evaluations of a College Reading Course," *Journal of Reading*, October, 1965, 9:10-15.

92. Ray, Darrel D., "The Permanency of Gains Made in a College Reading Improvement Program," *Journal of Educational Research*, September, 1965, 59:17-20.

93. Risenmay, Jay L., "The Influence of a Student-to-Student Counseling Program on the Academic Adjustment of BYU Freshmen," *Dissertation Abstracts*, March, 1966, 26:5246.

94. Schmidt, Bernard, "Changing Patterns of Eye Movement," *Journal of Reading*, May, 1966, 9:379-385.

95. Schneyer, J. Wesley, "The Relationship of Scholastic Aptitude Factors to Progress in a College Reading Course," *Journal of Developmental Reading*, Summer, 1964, 7:261-268.

96. Schroeder, Pearl, "Relative Spelling Ability as a Predictor of the Academic Performance of Superior Ability College Freshmen," *Journal of Educational Research*, May-June, 1966, 59:427-428.

97. Sim, John Cameron, "Decline in Weeklies' Numbers Starts from Misleading Peak," *Journalism Quarterly*, Spring, 1966, 43:121-124.

98. Smith, Paul M., Jr., and Johnson, Norman C., "Attitudes and Academic Status of Freshmen," *Journal of Negro Education*, Winter, 1966, 35:95-99.

99. Spear, F. F., and Green, R., "Inability to Concentrate," *British Journal of Psychiatry*, September, 1966, 12:913-915.

100. Stempel, Guido H., III, and Kliesch, Ralph E., "Which Readers are Reached if Paper Extends Coverage?" *Journalism Quarterly*, Summer, 1966, 43:335-336.

101. Stone, Donald Bradford, "Predicting Student Retention and Withdrawal in a Selected State University College of New York," *Dissertation Abstracts*, March, 1966, 26:5184.

102. Stone, J. Blair, "The Effects of Learner Characteristics on Performance in Programmed Text and Conventional Text Formats," *Journal of Educational Research*, November, 1965, 59:122-127.

103. Stone, LeRoy A., "A Discriminate Analysis and Prediction of Dropouts for Freshman Year with Agricultural Students," *Journal of Educational Research*, September, 1965, 59:37-38.

104. Tain, Elias Khalil, "A Study of the Academic and Personal-Social Difficulties Encountered by a Selected Group of Foreign Students at the University of Oregon," *Dissertation Abstracts*, February, 1966, 26:4352.

105. Taylor, Eleanor C., and Diamond, Robert M., *Use of Programmed Instruction in a Freshman Composition Course—A Feasibility Study*. Report No. 29. Coral Gables, Fla.: Office for the Study of Instruction, University of Miami, June, 1966. 18 pp. (Abstracted by Robert M. Diamond in *Audiovisual* Communication Review, Fall, 1966, 14:426-427.

106. Thornton, Berkley B., "The Number One Problem," *Personnel Journal*, April, 1966, 45:237-238.

107. Tresselt, M. E., "A Preliminary Study of Factors in Learning in a How-to-Study Course," *Journal of Psychology*, September, 1966, 64:91-93.

108. Trismen, Donald Albert, "An Experimental Investigation of a Maximal Speed Pacing Technique for Teaching Music Reading," *Dissertation Abstracts*, March, 1966, 26:5253.

109. Troldahl, Verling C., and Jones, Robert L., "Predictors of Newspaper Advertising Readership," *Journal of Advertising Research*, March, 1965, 5:23-27.

110. Tucker, Alfred, "An Investigation of Factors Contributing to and Interfering with the Successful Achievement of Remedial English Course Objectives in Los Angeles City Junior Colleges," *Dissertation Abstracts*, July, 1966, [illegible]:61A.

111. Van Mondfrans, Adrian P., and Travers, Robert, M. W., "Paired Associate Learning Within and Across Sense Modalities and Involving Simultaneous and Sequential Presentations," *American Educational Research Journal*, March, 1965, 2:89-99.

112. Wall, Carol, "The Foreign Press in US Libraries," *Library Journal*, February 1, 1966, 91:638-641.

113. Wark, David M., and Warren, Ann Dell, "Operant Conditioning of Reading Rate," *Journal of Reading*, January, 1966, 9:147-156.

114. Weaver, Wendell W., and Garrison, Nelson, "The Coding of Phrases: An Experimental Study," *Journal of Communication*, September, 1966, 16:192-198.

115. Webb, Vergial S., "A Study of the Effectiveness of the Use of Reading Materials and the Student Teaching Seminar in Providing Assistance to Student Teachers," *Dissertation Abstracts*, August, 1966, 27:410A.

116. Weiss, Robert Frank; Buchanan, William; and Pasamanick, Benjamin, "Social Consensus in Persuasive Communication," *Psychological Reports*, February, 1964, 14:95-98.

117. Whittaker, James O., "Consistency of Individual Differences in Persuasibility," *Journal of Communication*, March, 1965, 15:28-34.

118. Winston, Ethna B., "Foreign Students in Remedial Reading," January, 1966, *Journal of Reading*, 9:170-178.

119. Wright, John C., "High School Students in a College Reading Class," *Journal of Reading*, March, 1966, 9:238-241.

120. Yarrow, Walter Harry, "An Investigation of the Problems of Entering Freshmen at the University of Southern Mississippi," *Dissertation Abstracts*, February, 1966, 26:4351-4352.

121. Yost, F. D., "Attitude Scaling of Magazine Statements," *Journalism Quarterly*, Spring, 1966, 43:125-129.